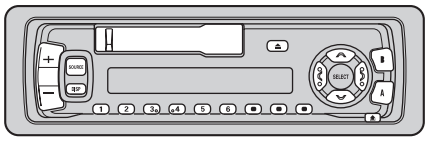
Service Manual

KEH-3930R/X1M/EW



ORDER NO.
CRT2420

HIGH POWER CASSETTE PLAYER WITH RDS TUNER

KEH-3930R X1M/EW

KEH-3900R X1M/EW

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-1011	CRT2406	3L	Cassette Mech. Module:Circuit Description, Mech.Description, Disassembly

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PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
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PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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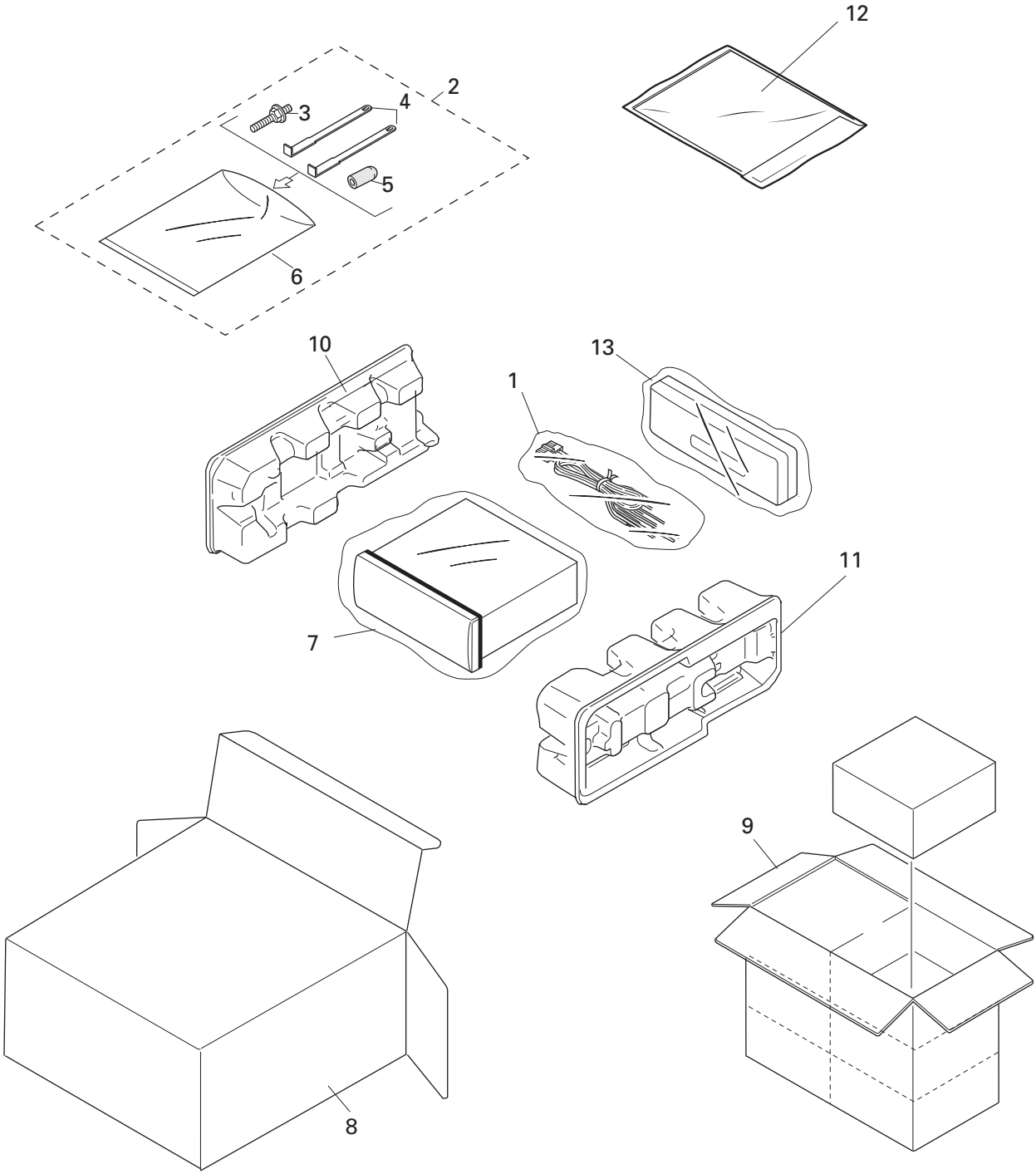
1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

● Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.

● Screws adjacent to ∇ mark on the product are used for disassembly.

(1) PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE6100
	2	Accessory Assy	CEA1917
	3	Screw	CBA1304
	4	Handle	CNC5395
	5	Bush	CNV3930
*	6	Polyethylene Bag	E36-615
	7	Polyethylene Bag	CEG-162
	8	Carton	See Contrast table(2)
	9	Contain Box	See Contrast table(2)
	10	Protector	CHP2243
	11	Protector	CHP2244
	12-1	Owner's Manual	CRD3122
	12-2	Owner's Manual	CRD3123
	12-3	Installation Manual	CRD3124
*	12-4	Passport	CRY1013
*	12-5	Warranty Card	CRY1157
	12-6	Polyethylene Bag	CEG1116
	13	Case Assy	CXB3520

(2) CONTRAST TABLE

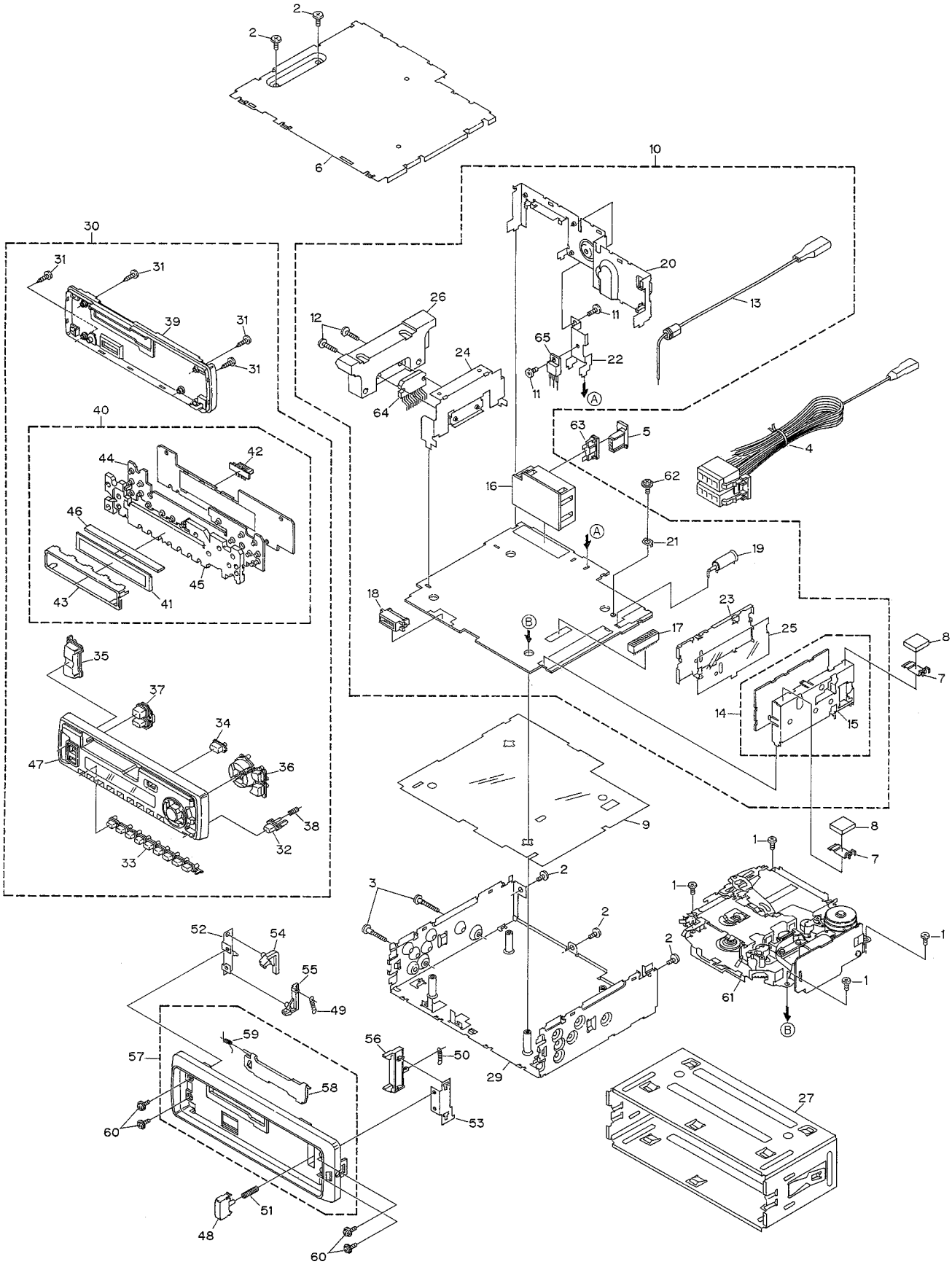
KEH-3930R/X1M/EW and KEH-3900R/X1M/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		KEH-3930R/X1M/EW	KEH-3900R/X1M/EW
8	Carton	CHG3844	CHG3843
9	Contain Box	CHL3844	CHL3843

● **Owner's Manual, Installation Manual**

Model	Part No.	Language
KEH-3930R/X1M/EW KEH-3900R/X1M/EW	CRD3122	English, Spanish, German
	CRD3123	French, Italian, Dutch
	CRD3124	English, Spanish, German, French, Italian, Dutch

2.2 EXTERIOR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1
1
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58
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56
50
53
48
51
60
29
27

(1) EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC
2	Screw	BSZ30P050FMC
3	Screw	BSZ30P200FMC
4	Cord Assy	CDE6100
5	Plug	CKM1314
6	Case	CNB2350
7	Earth Plate	CNC8368
8	Spacer	CNM4913
9	Insulator	CNM5963
10	Tuner Amp Unit	CWM6806
11	Screw	BSZ26P080FMC
12	Screw	BSZ26P160FMC
13	Cord	CDE6158
14	FM/AM Tuner Unit	CWE1500
15	Holder	CNC7532
16	Plug(CN604)	CKM1288
17	Connector(CN602)	CKS3568
18	Connector(CN601)	CKS3581
19	Antenna Jack(CN402)	CKX1056
20	Panel	CNB2344
21	Holder	CNC5399
22	Holder	CNC6845
23	Holder	CNC7533
24	Holder	CNC7996
25	Insulator	CNM5967
26	Heat Sink	CNR1505
27	Holder Unit	CXB2687
28	•••••	
29	Chassis Unit	See Contrast table(2)
30	Detach Grille Assy	See Contrast table(2)

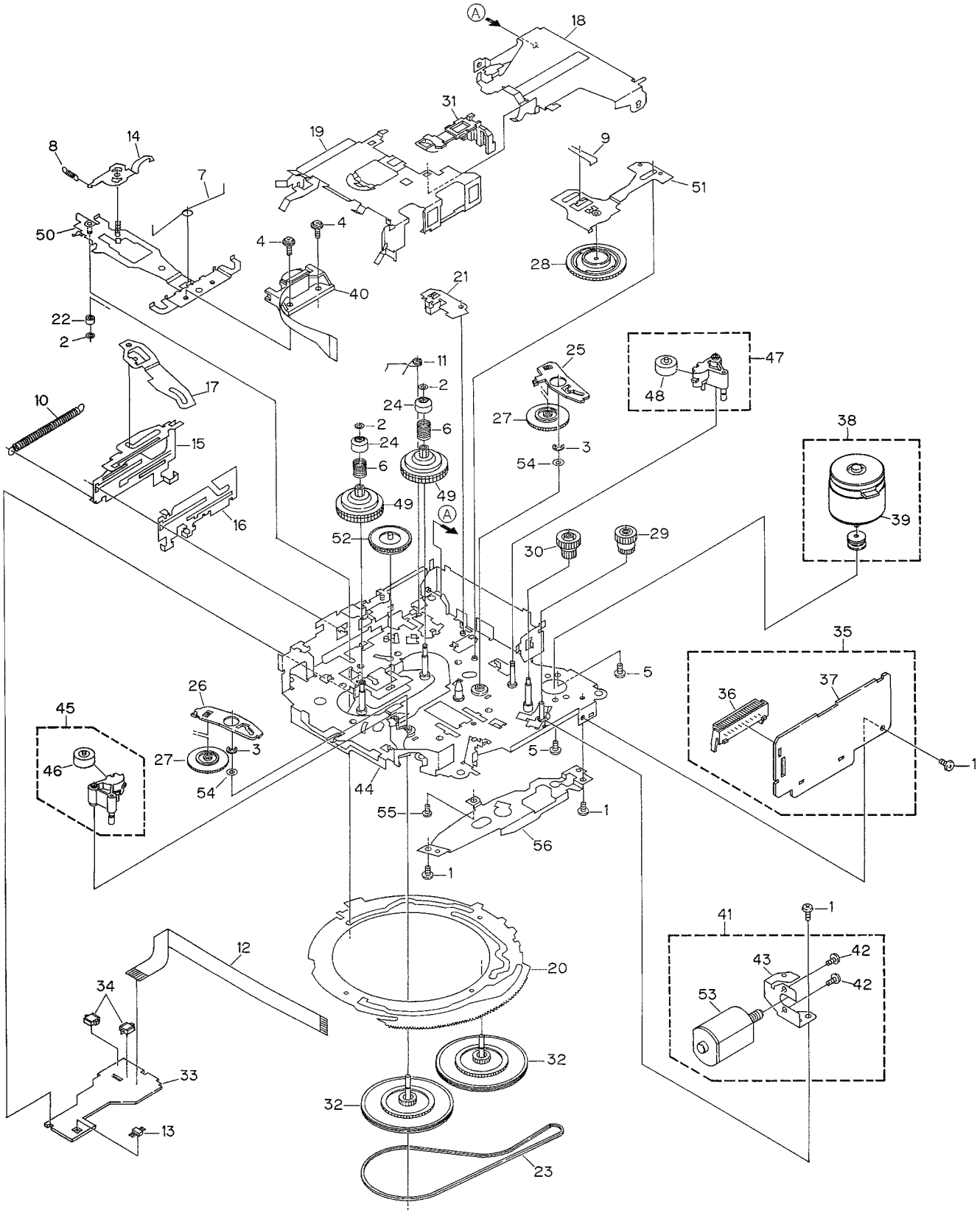
Mark No.	Description	Part No.
31	Screw	BPZ20P100FZK
32	Button(DETACH)	See Contrast table(2)
33	Button(1-6)	CAC6275
34	Button(EJECT)	CAC6277
35	Button(+ -)	See Contrast table(2)
36	Button(SELECT)	See Contrast table(2)
37	Button(SOURCE/LOUD)	CAC6494
38	Spring	CBH2210
39	Cover	See Contrast table(2)
40	Keyboard Unit	See Contrast table(2)
41	LCD(LCD1801)	CAW1559
42	Connector(CN1801)	CKS3580
43	Holder	CNC8517
44	Rubber	CNV5954
45	Lighting Conductor	CNV6274
46	Rubber	CNV5968
47	Grille Unit	See Contrast table(2)
48	Button	CAC4836
49	Spring	CBH1834
50	Spring	CBH1835
51	Spring	CBH2182
52	Bracket	CNC6135
53	Bracket	CNC6791
54	Arm	CNV4692
55	Arm	CNV4693
56	Arm	CNV4728
57	Panel Unit	See Contrast table(2)
58	Door	See Contrast table(2)
59	Spring	CBH1838
60	Screw	IMS20P030FZK
61	Cassette Mechanism Module	EXK4100
62	Screw	ISS26P055FUC
63	Fuse(10A)	CEK1136
64	IC(IC302)	TDA7384
65	Transistor(Q904)	2SD2396

(2) CONTRAST TABLE

KEH-3930R/X1M/EW and KEH-3900R/X1M/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		KEH-3930R/X1M/EW	KEH-3900R/X1M/EW
29	Chassis Unit	CXB4530	CXB4529
30	Detach Grille Assy	CXB4850	CXB4849
32	Button(DETACH)	CAC5929	CAC5789
35	Button(+ -)	CAC6458	CAC6273
36	Button(SELECT)	CAC6459	CAC6276
39	Cover	CNS5662	CNS5661
40	Keyboard Unit	CWM6813	CWM6812
47	Grille Unit	CXB5840	CXB4519
57	Panel Unit	CXB4929	CXB4928
58	Door	CAT2108	CAT2109

2.3 CASSETTE MECHANISM MODULE

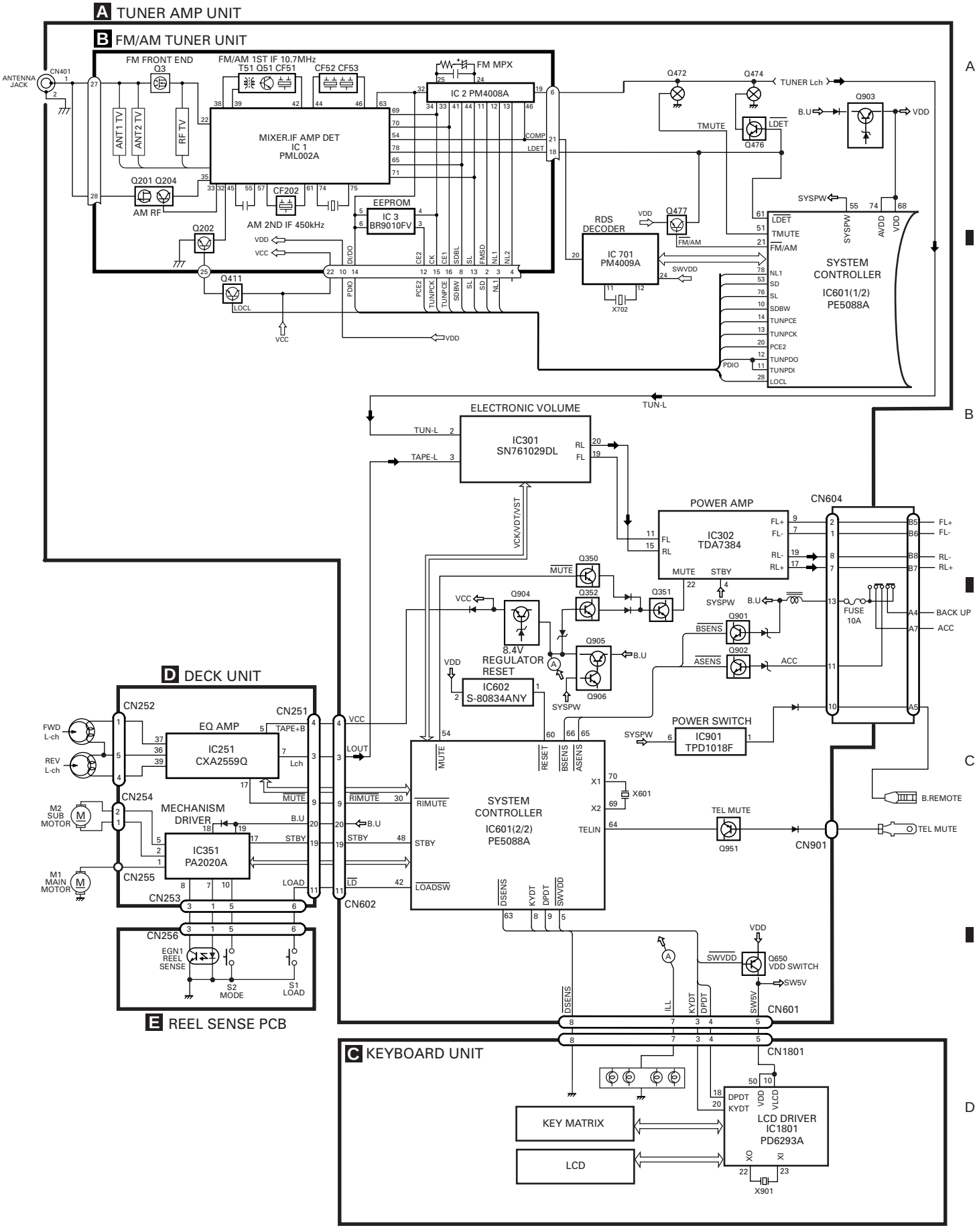


● CASSETTE MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC
2	Washer	CBF1037
3	Washer	CBG1003
4	Screw	EBA1028
5	Screw	CBA1037
6	Spring	EBH1531
7	Spring	EBH1624
8	Spring	EBH1625
9	Spring	EBH1626
10	Spring	EBH1627
11	Spring	EBH1628
12	Cord	EDD1024
13	Photo-reflector(EGN1)	EGN1004
14	Arm	ENC1526
15	Lever	ENC1530
16	Lever	ENC1531
17	Arm	ENC1532
18	Frame	ENC1533
19	Holder	ENC1534
20	Gear	ENC1535
21	Arm	ENC1536
22	Roller	ENR1040
23	Belt	ENT1027
24	Collar	ENV1508
25	Arm	ENV1539
26	Arm	ENV1540
27	Gear	ENV1544
28	Gear	ENV1547
29	Gear	ENV1548
30	Worm Wheel	ENV1550
31	Lever	ENV1551
32	Flywheel	ENV1554
33	Gathering PCB	ENX1054
34	Switch(S1,S2)	ESG1007
35	Deck Unit	EWM1023
36	Plug(CN251)	CKS3540
37	Gathering PCB	ENX1053
38	Motor Unit(M1)	EXA1491
39	Motor	EXM1028
40	Head Assy(HD1)	EXA1592
41	Motor Unit(M2)	EXA1580
42	Screw	BMZ20P022FMC
43	Bracket	ENC1528
44	Chassis Unit	EXA1582
45	Pinch Holder Unit	EXA1584
46	Pinch Roller	ENV1518
47	Pinch Holder Unit	EXA1583
48	Pinch Roller	ENV1518
49	Reel Unit	EXA1585
50	Head Base Unit	EXA1586
51	Lever Unit	EXA1587
52	Gear Unit	EXA1588
53	Motor Unit(Service)	EXX1055
54	Washer	HBF-179
55	Screw	CBA1250
56	Bracket	ENC1542

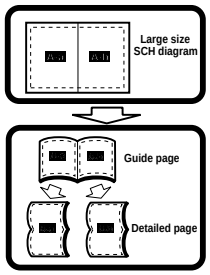
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM



3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



A TUNER AMP UNIT

A-a

ANTENNA JACK

CN402

TUN401

B FM/AM TUNER UNIT

DEMPHASIS

FM(100%) : -15.5dBs
AM(30%) : -26dBs

RDS DECODER

IC701
PM4089A

SYSTEM CONTROLLER
IC601
PE5088A

RESET
IC602
S-80834ANY

CASSETTE MECHANISM MODULE

CN602

TAPE 315Hz(0dB)
: -7.9dBs

D E

NOTE :
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

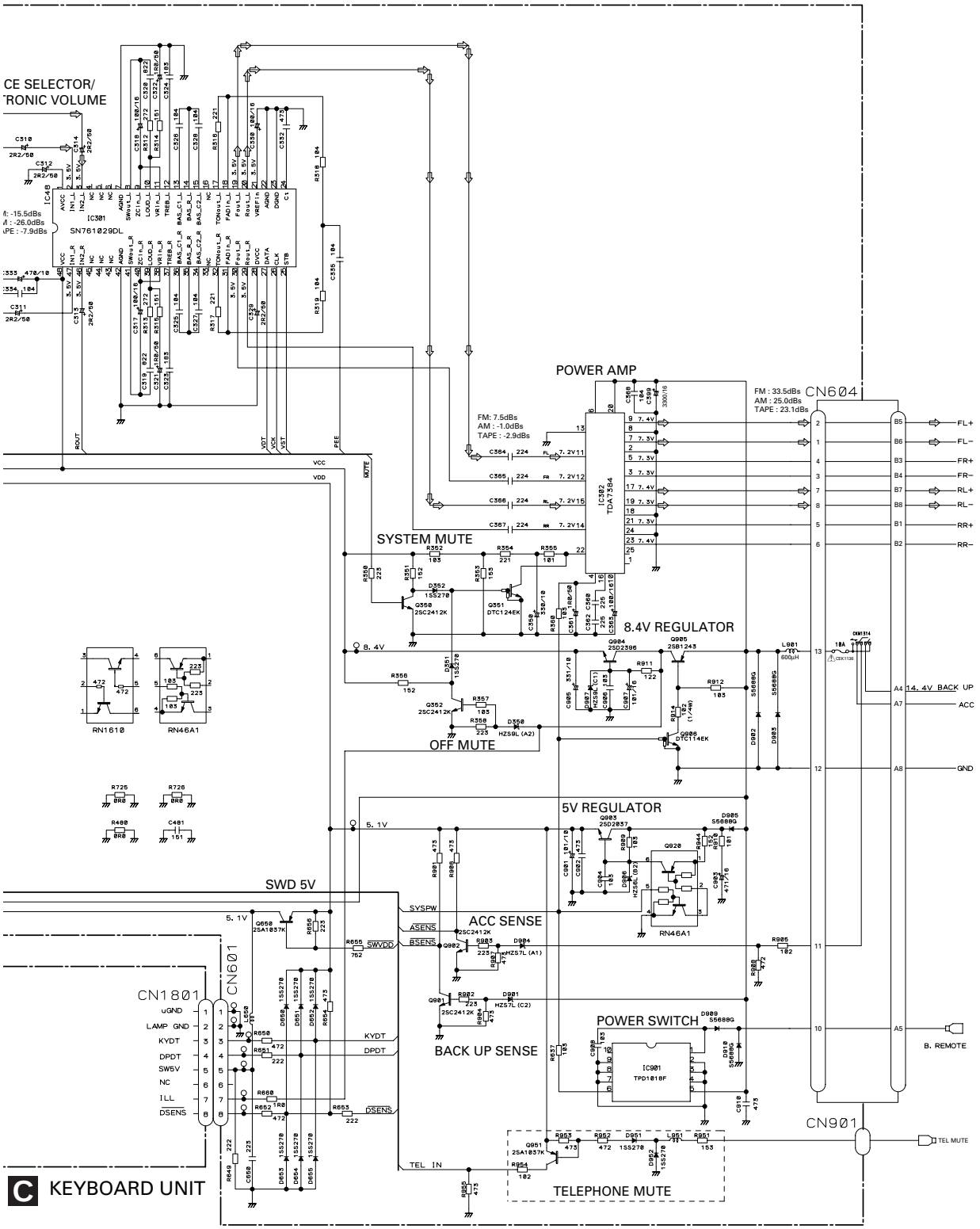
Ex. *Resistors

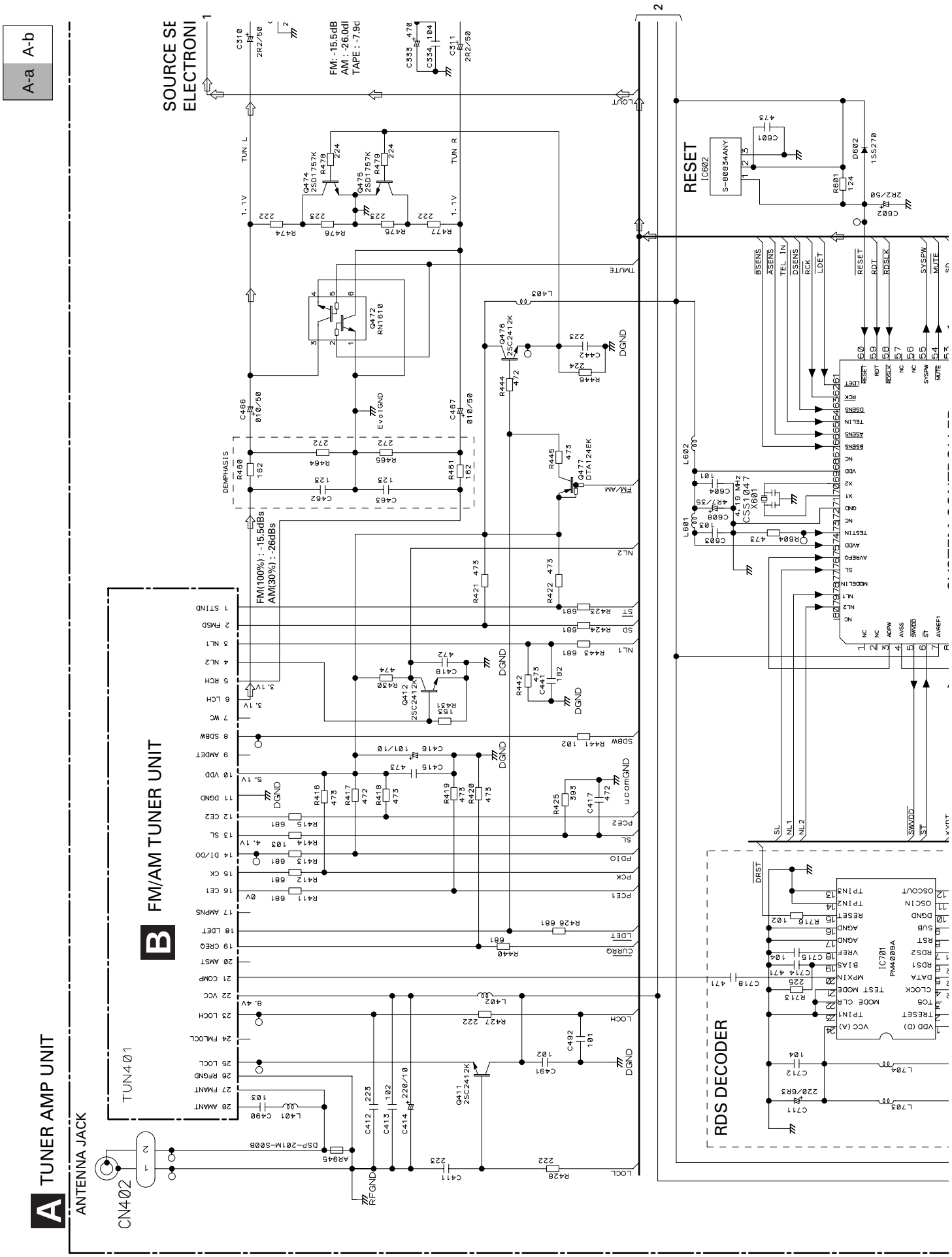
Code	Practical value
123	12k ohms
103	10k ohms

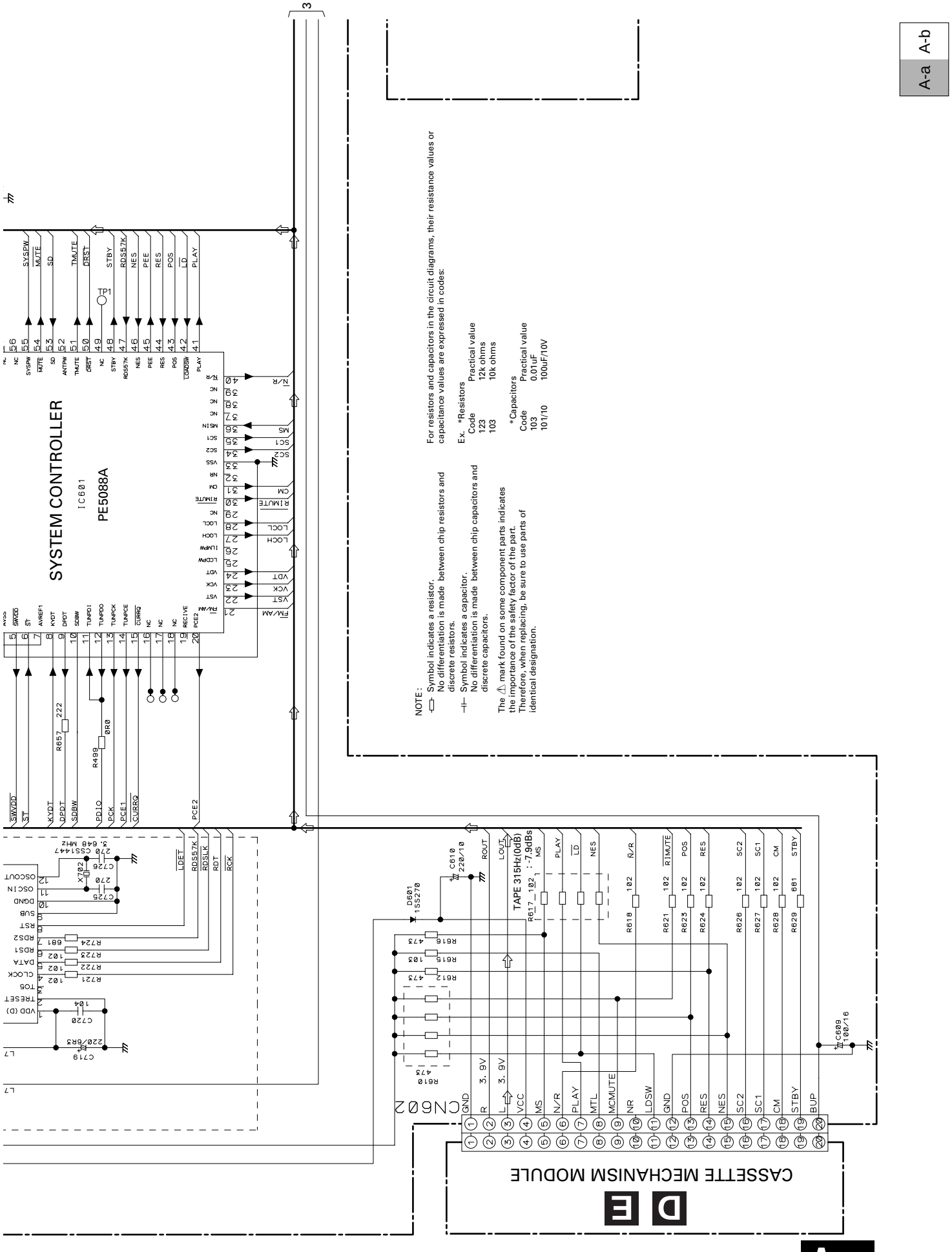
*Capacitors

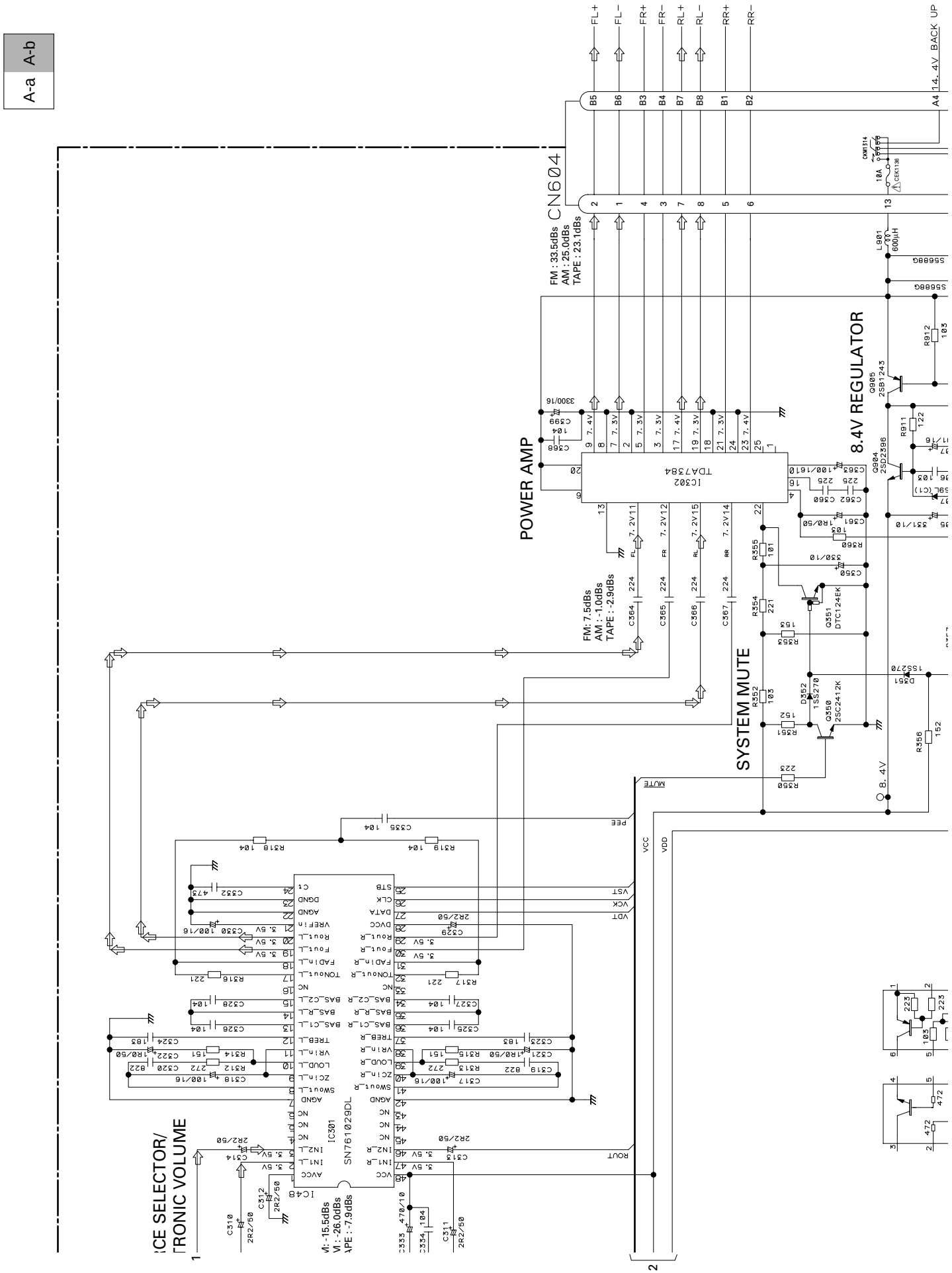
Code	Practical value
103	0.01uF
101/10	100uF/10V

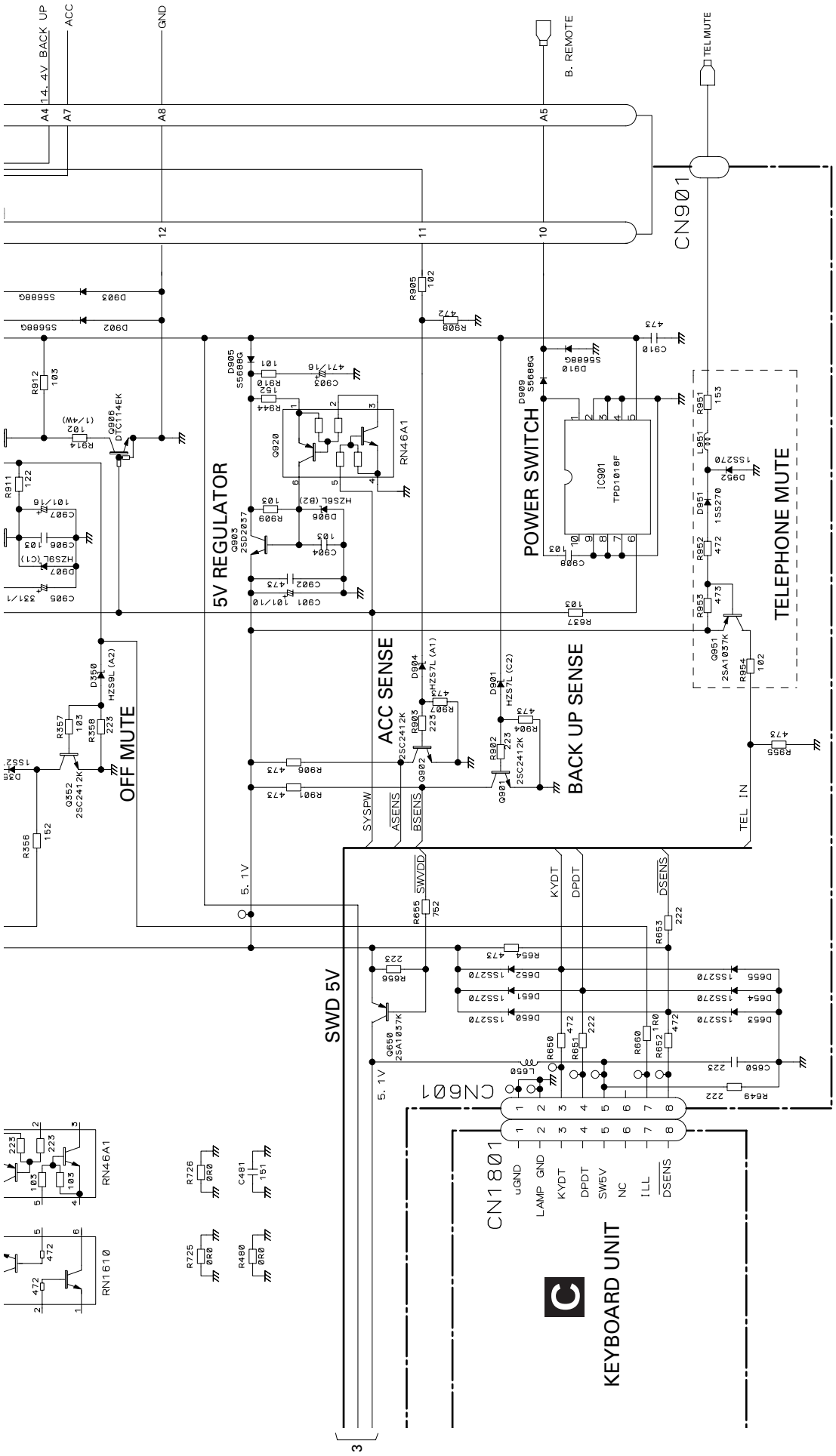
A-b


CE SELECTOR/
'RONIC VOLUME
IC301
SN761029DL
POWER AMP
IC502
TDA7584
FM: 7.5dBs
AM : -1.0dBs
TAPE : -2.9dBs
FM : 33.5dBs
AM : 25.0dBs
TAPE : 23.1dBs
CN604
FL+
FL−
FR+
FR−
RL+
RL−
RR+
RR−
SYSTEM MUTE
8.4V REGULATOR
8. 4V
14. 4V BACK UP
ACC
GND
OFF MUTE
5V REGULATOR
5. 1V
SWD 5V
ACC SENSE
BACK UP SENSE
SVSPW
ASENS
BSENS
SWDD
KYDT
DPDT
DSENS
TEL IN
CN1801
CN601
uGND
LAMP GND
SW5V
NC
ILL
POWER SWITCH
IC901
TPD1018F
B. REMOTE
CN901
TEL MUTE
TELEPHONE MUTE
RN1610
RN46A1
C KEYBOARD UNIT

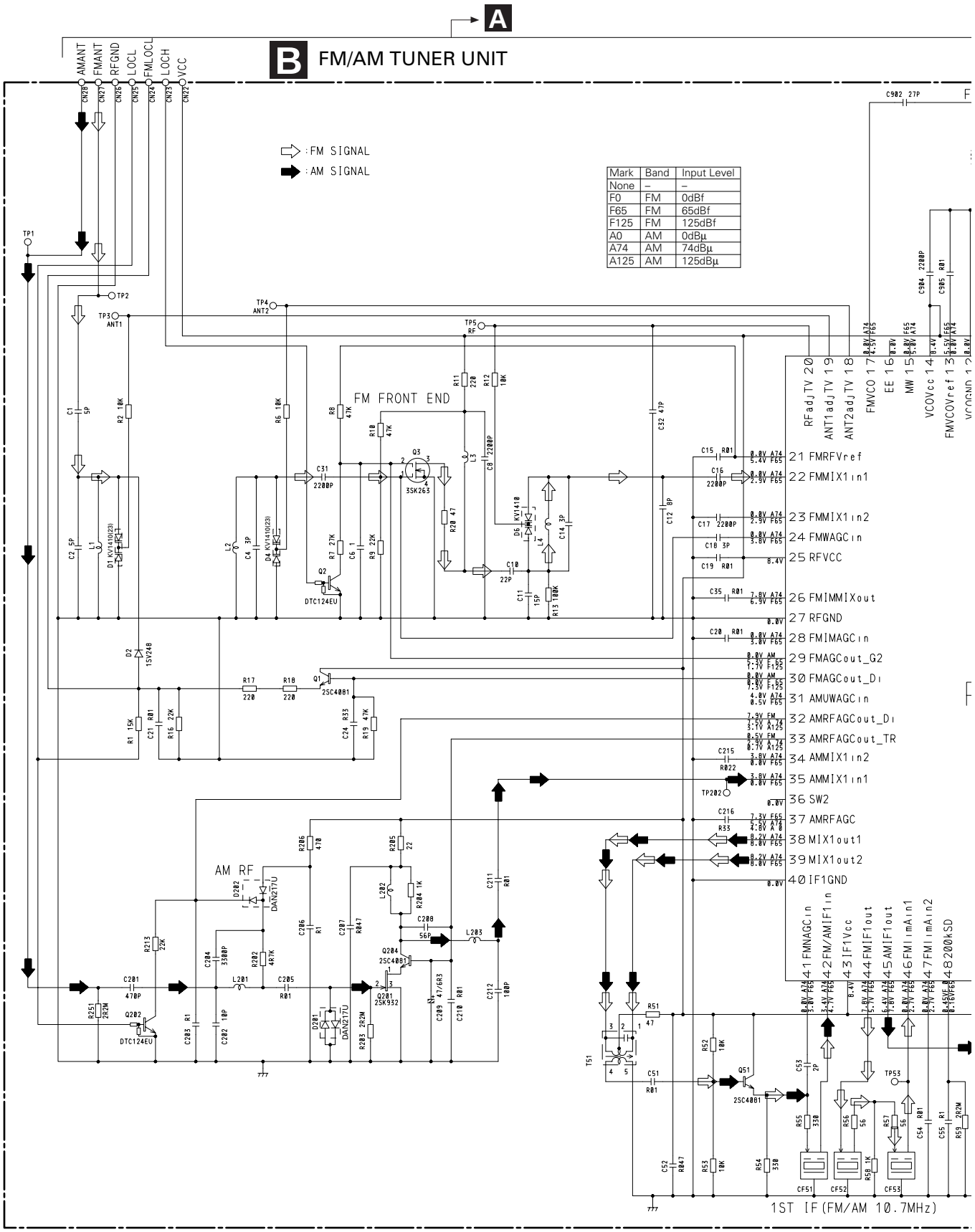

A-b
A-a
A TUNER AMP UNIT
ANTENNA JACK
CN402
B FM/AM TUNER UNIT
TUN401
RESET
IC602
S-80834ANY
RDS DECODER
IC701
PM4009A
X601
4.19 MHz
CSS1047
SOURCE SE
ELECTRONI
FM(100%) : -15.5dBs
AM(30%) : -26dBs
FM: -15.5dB
AM : -26.0dl
TAPE : -7.9d
TUN L
TUN R
DEMPHASIS
EvolGND
DGND
RFGND
LOCL
LOCH
TMUTE
FM/AM
SWVDD
SYSPW
MUTE
RESET
RDT
RDSLK
LDET
RCK
DSENS
TEL_IN
ASENS
BSENS

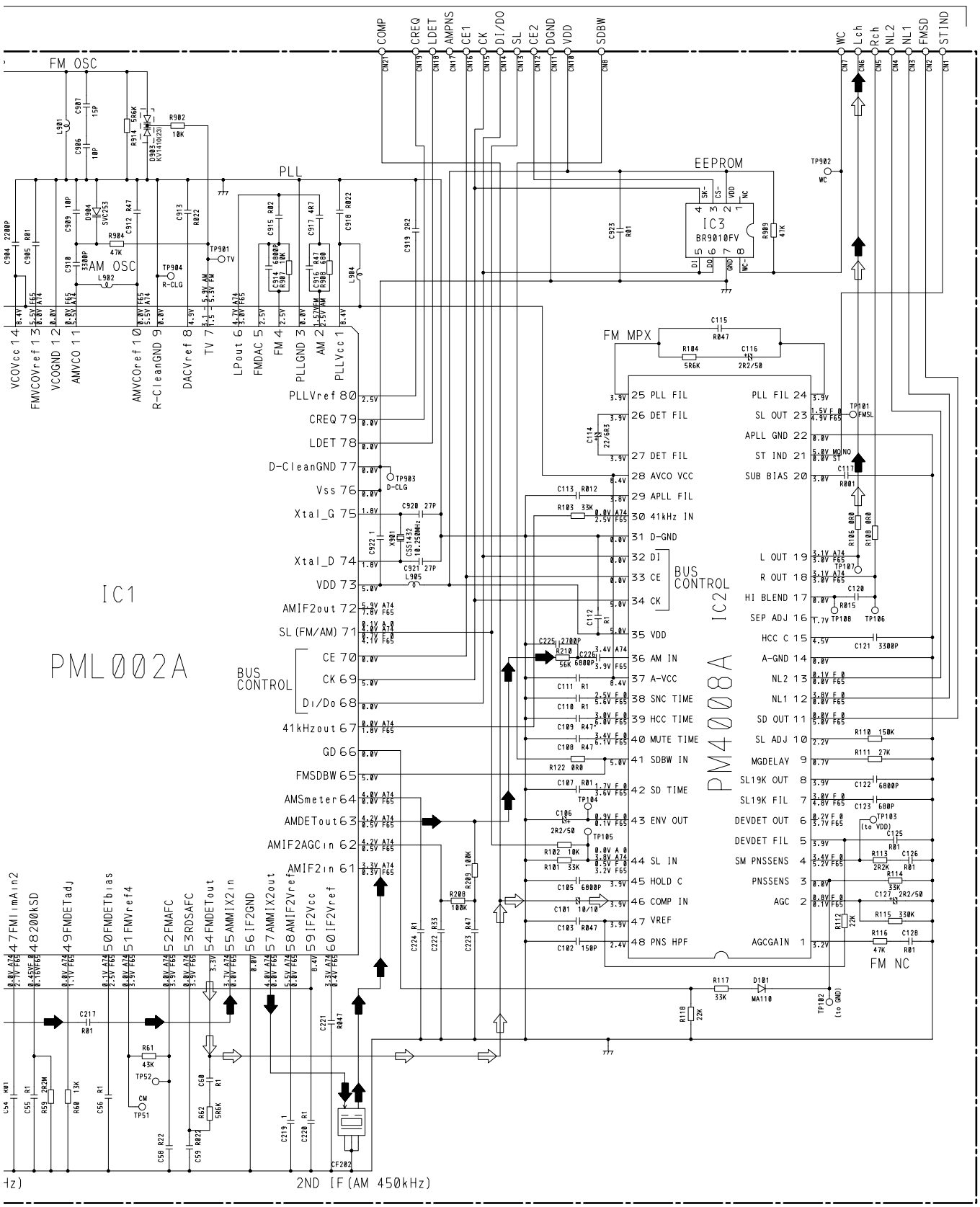

SYSTEM CONTROLLER
IC601
PE5088A
CASSETTE MECHANISM MODULE
CN602
TAPE 315Hz(0dB)
NOTE:
For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:
Ex. *Resistors
Code Practical value
123 12k ohms
103 10k ohms
*Capacitors
Code Practical value
103 0.01uF
101/10 100uF/10V
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.


A-b
A-a
CN604
FL+
FL−
FR+
FR−
RL+
RL−
RR+
RR−
14.4V BACK UP
FM : 33.5dBs
AM : 25.0dBs
TAPE : 23.1dBs
POWER AMP
IC302
TDA7384
8.4V REGULATOR
Q905
2SB1243
Q904
2SD2396
SYSTEM MUTE
Q351
DTC124EK
Q350
2SC2412K
D352
1SS270
D351
1SS270
FM: 7.5dBs
AM : -1.0dBs
TAPE : -2.9dBs
FM: -15.5dBs
AM : -26.0dBs
TAPE : -7.9dBs
IC48
SN761029DL
IC301
SOURCE SELECTOR/
ELECTRONIC VOLUME
8.4V
MUTE
VCC
VDD
VST
VCK
VDT
ROUT


14. 4V BACK UP
ACC
GND
B. REMOTE
TEL MUTE
CN901
5V REGULATOR
POWER SWITCH
TELEPHONE MUTE
OFF MUTE
ACC SENSE
BACK UP SENSE
SWD 5V
KEYBOARD UNIT
CN1801
CN6Ø1
SYSPW
ASENS
BSENS
TEL IN
KYDT
DPDT
DSENS
SWVDD
5. 1V
uGND
LAMP GND
KYDT
DPDT
SW5V
NC
ILL
DSENS

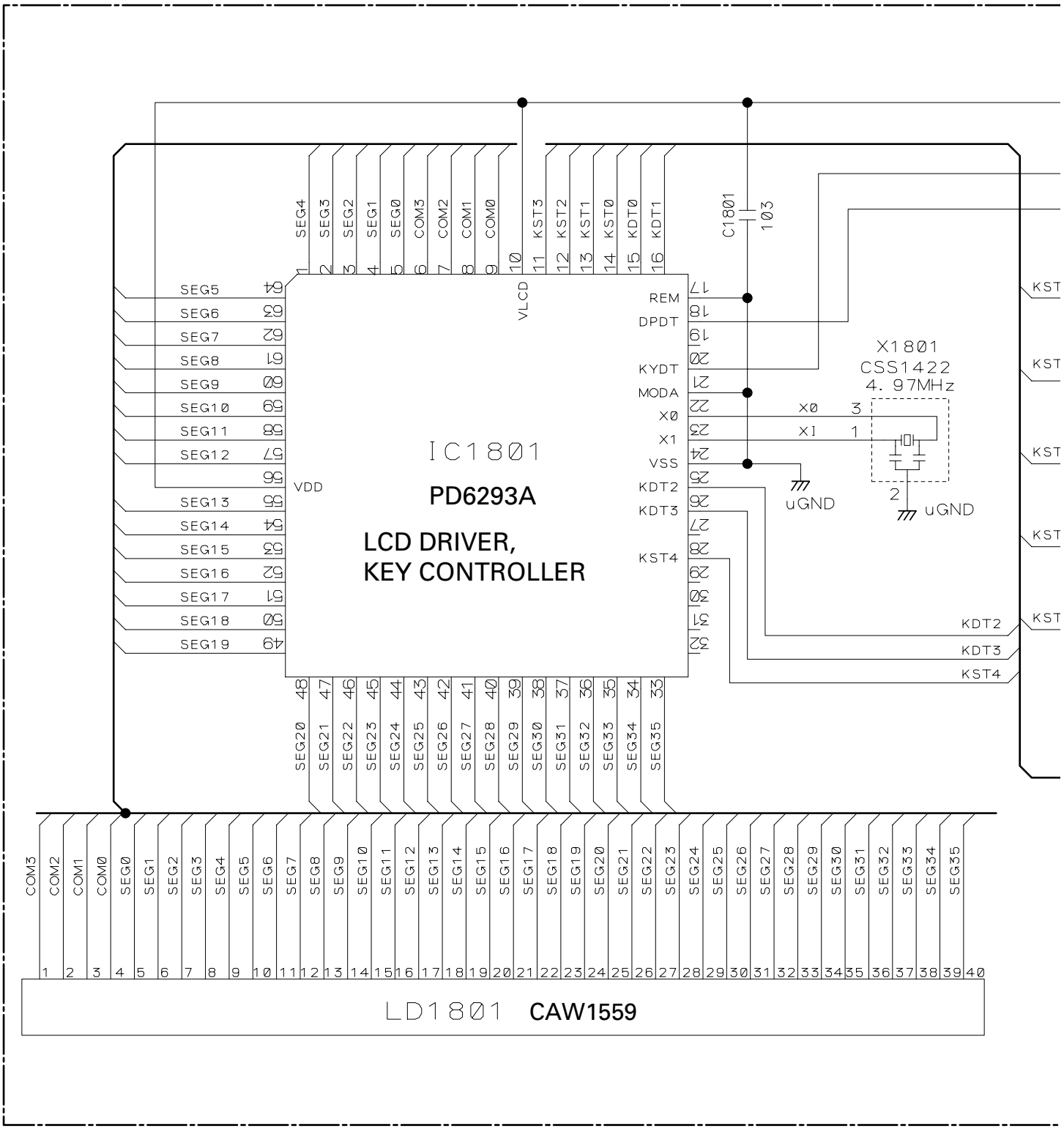
3.3 FM/AM TUNER UNIT

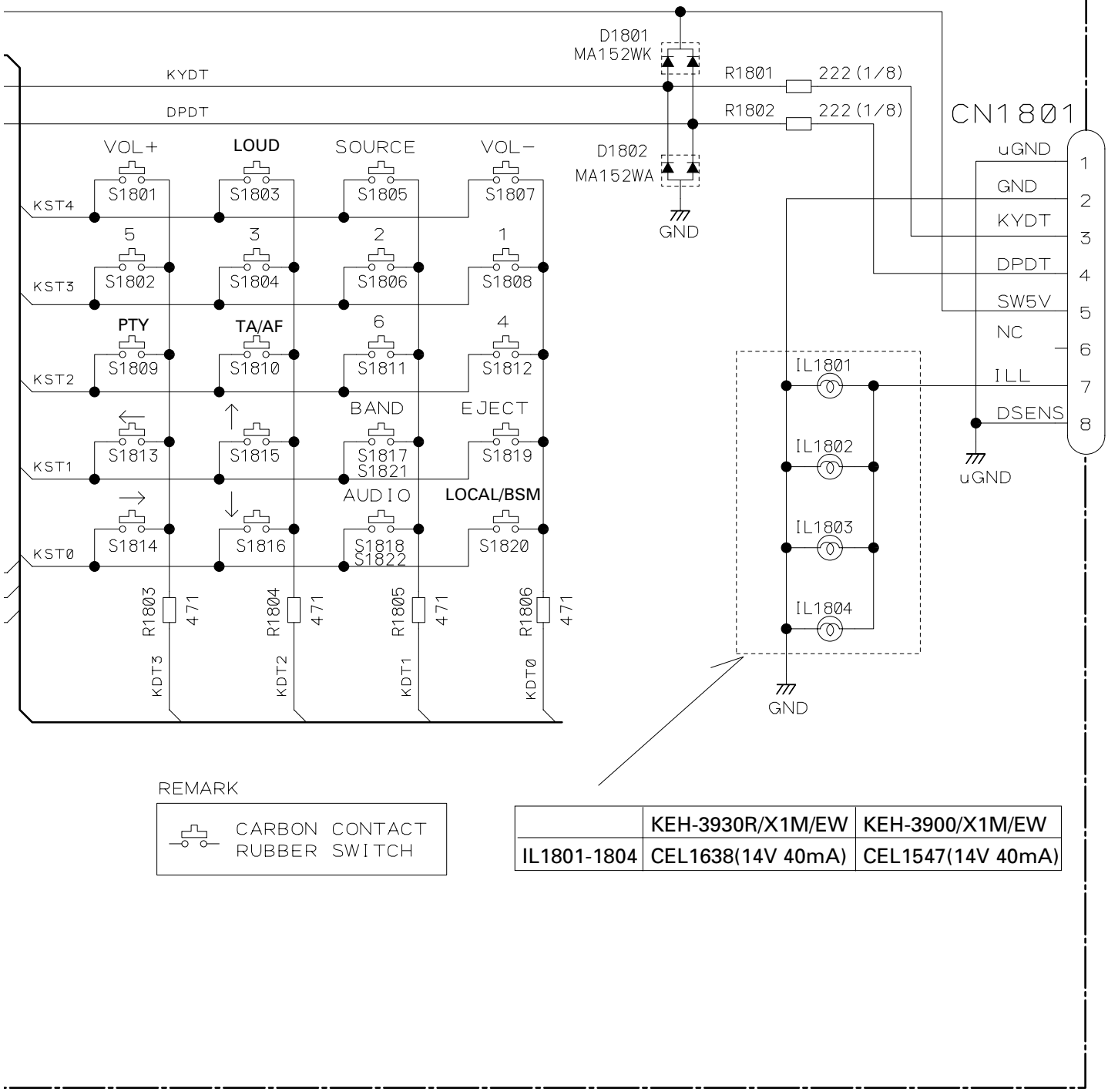



IC1
PML002A
IC2
PM4008A
IC3
BR9010FV
EEPROM
FM OSC
AM OSC
PLL
FM MPX
BUS CONTROL
FM NC
2ND IF(AM 450kHz)

3.4 KEYBOARD UNIT

C KEYBOARD UNIT



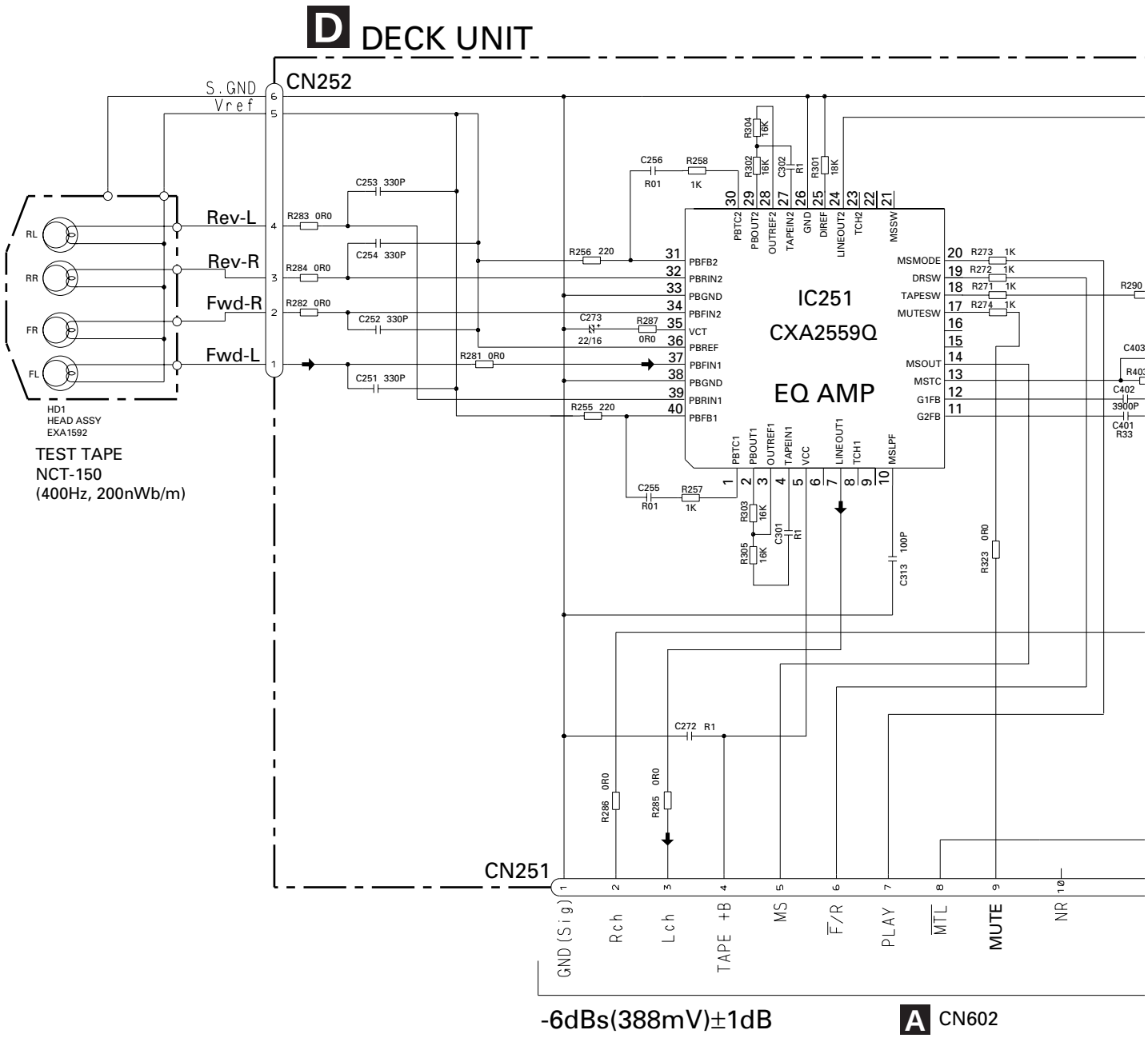


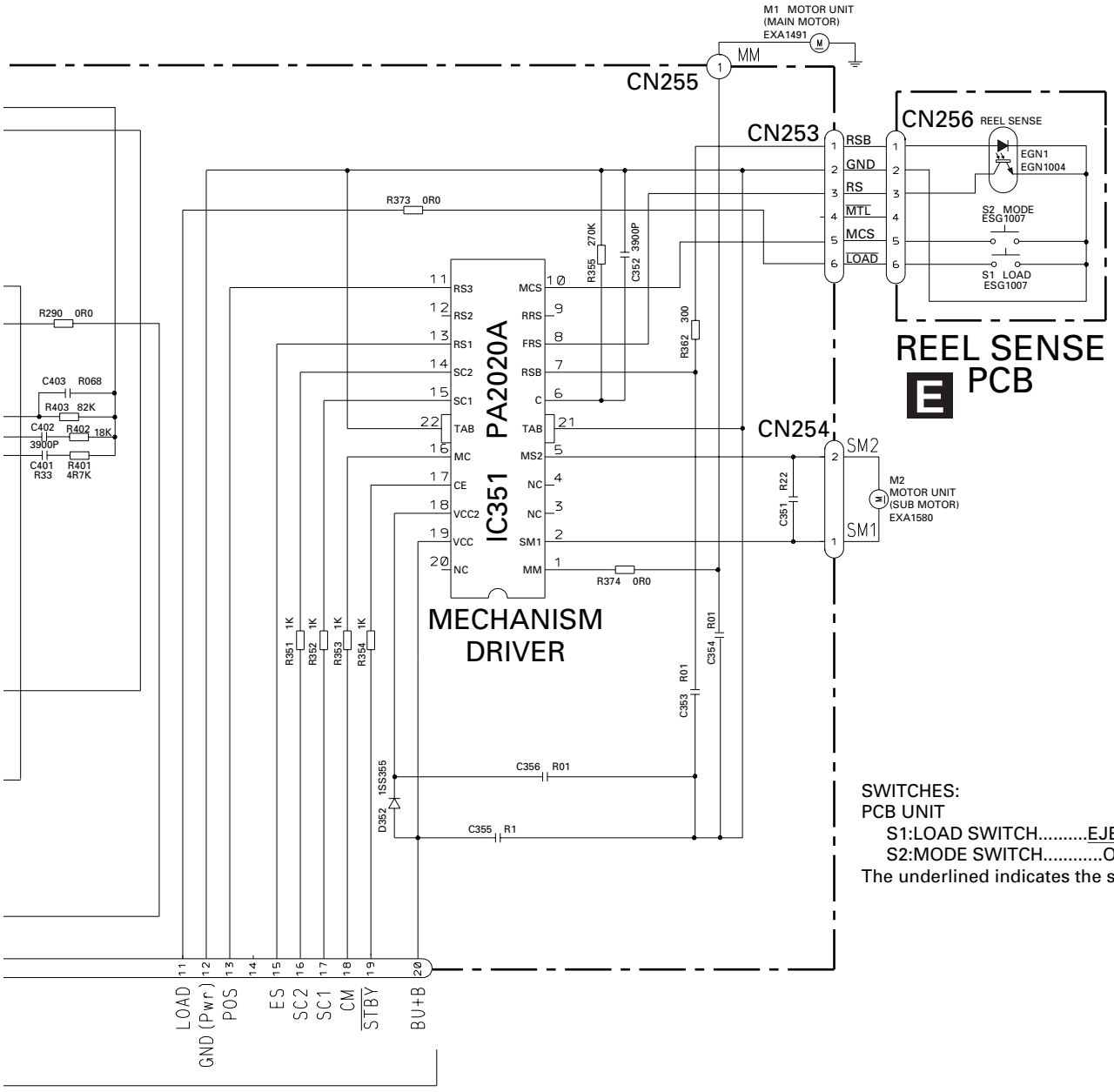
REMARK

CARBON CONTACT
RUBBER SWITCH

	KEH-3930R/X1M/EW	KEH-3900/X1M/EW
IL1801-1804	CEL1638(14V 40mA)	CEL1547(14V 40mA)

3.5 CASSETTE MECHANISM MODULE





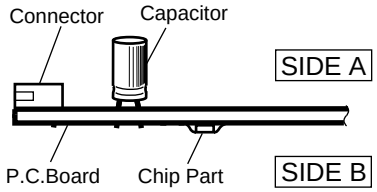
SWITCHES:
PCB UNIT
S1:LOAD SWITCH.....EJECT-PLAY
S2:MODE SWITCH.....ON-OFF
The underlined indicates the switch position.

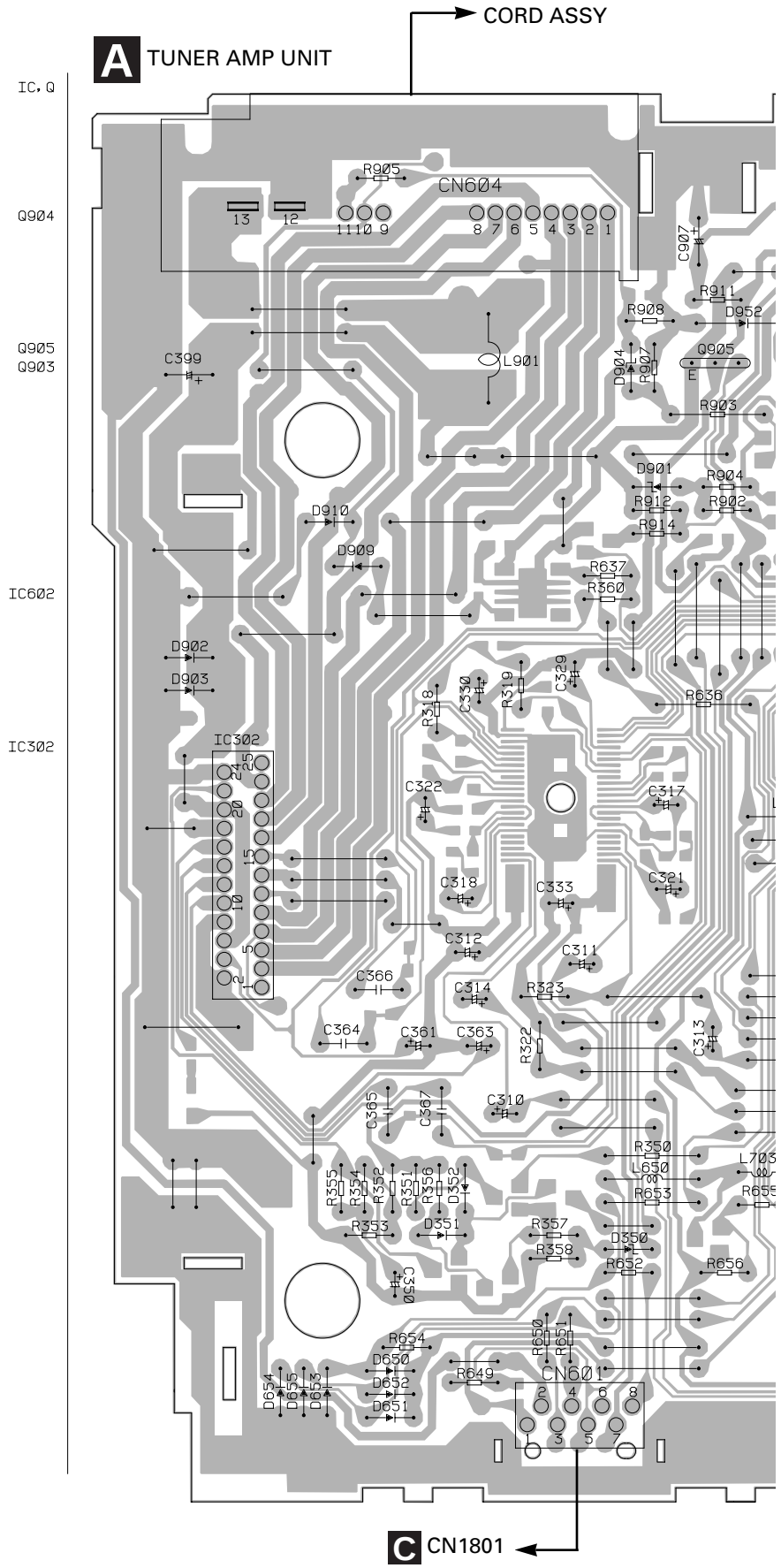
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

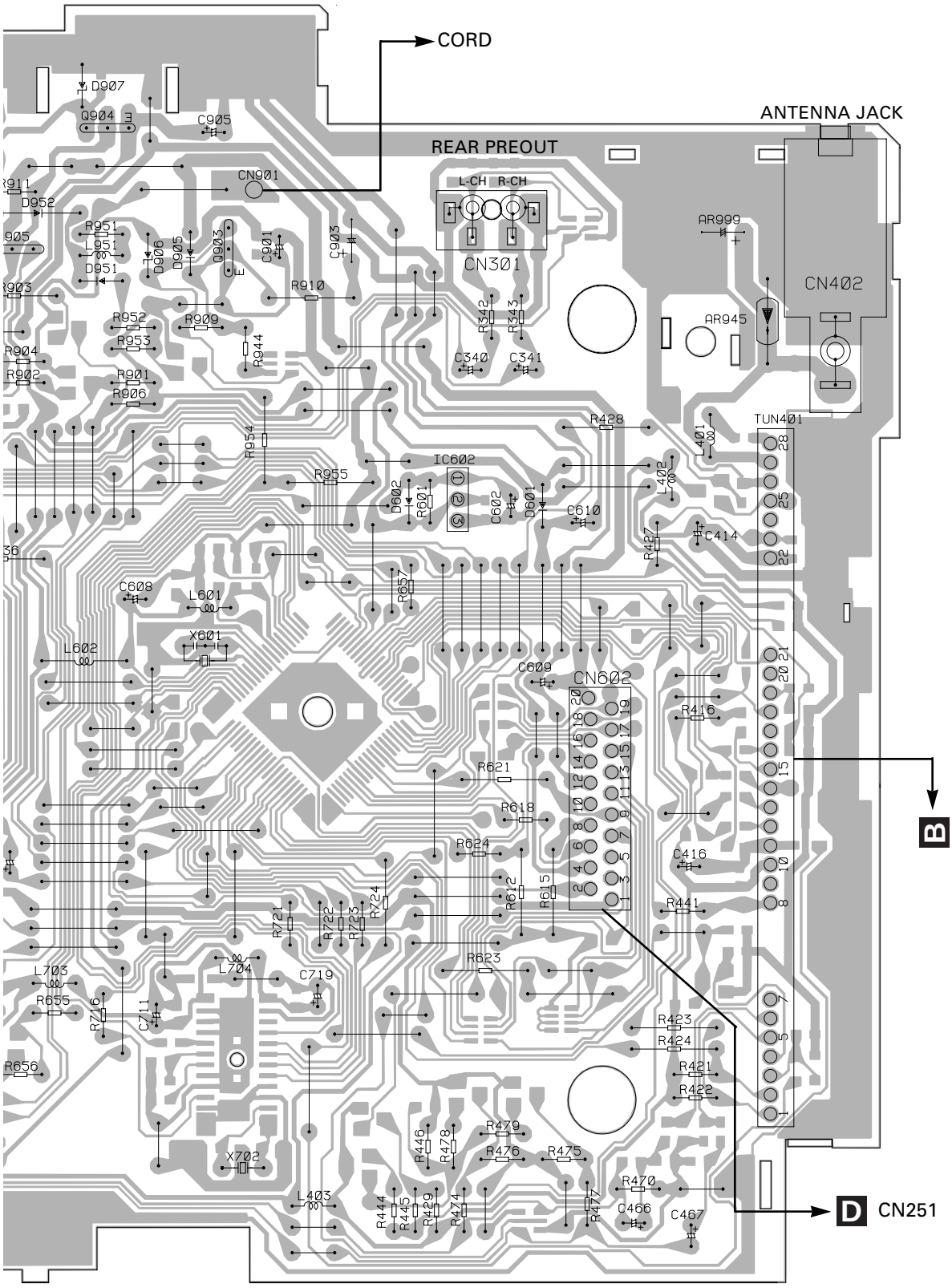
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

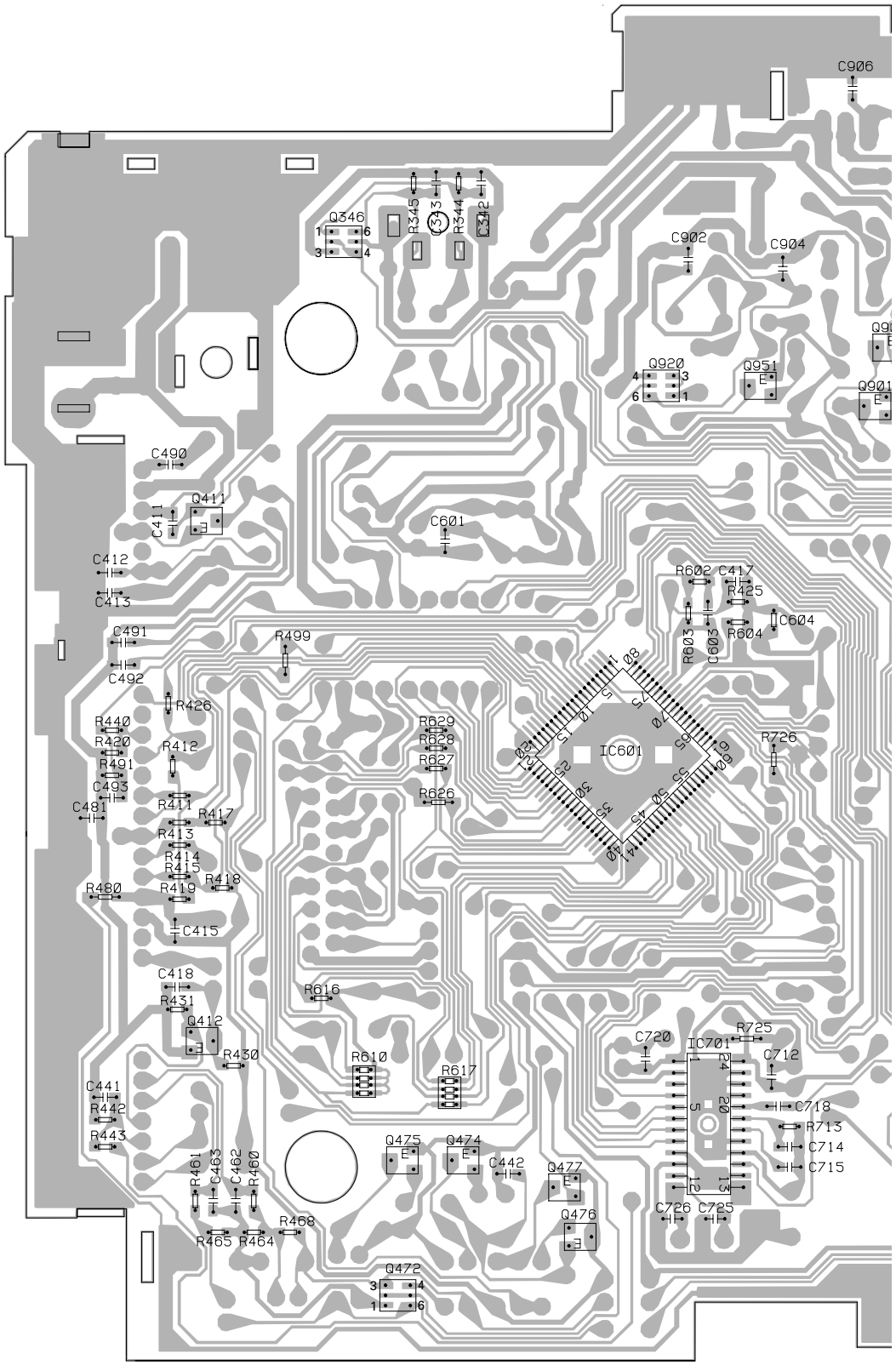




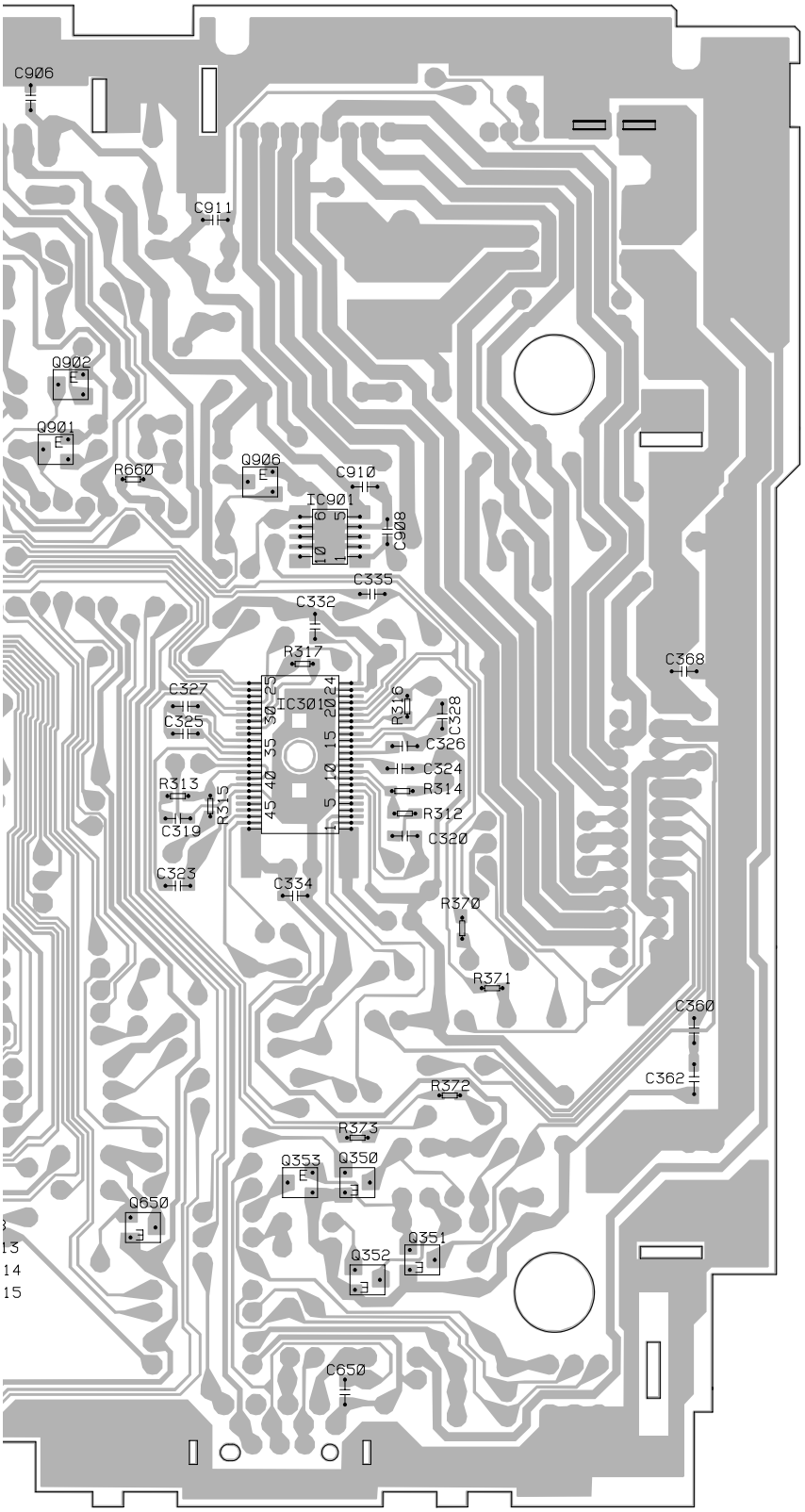
SIDE A


CORD
ANTENNA JACK
REAR PREOUT
L-CH R-CH
CN901
CN301
CN402
AR999
AR945
TUN401
IC602
CN602
B
D
CN251
D907
Q904
C905
D952
R951
D951
D906
D905
Q903
C901
C903
R910
R952
R909
R953
R944
R904
R902
R901
R906
R954
R955
R342
R343
C340
C341
R428
L401
L402
D602
R601
C602
D601
C610
R427
C414
C608
L601
X601
L602
R657
C609
R621
R618
R624
R612
R615
R416
C416
R441
R721
R722
R723
R724
L703
L704
C719
R655
R716
C711
R656
R623
R423
R424
R421
R422
R479
R476
R475
R446
R478
X702
L403
R444
R445
R439
R474
R477
R470
C466
C467

A TUNER AMP UNIT



SIDE B



IC, Q

A

Q346

Q902

Q920 Q951
Q901

Q906

IC901

B

Q411

IC301

IC601

C

Q412

IC701 Q353
Q350
Q650

Q351
Q475 Q474
Q477 Q352

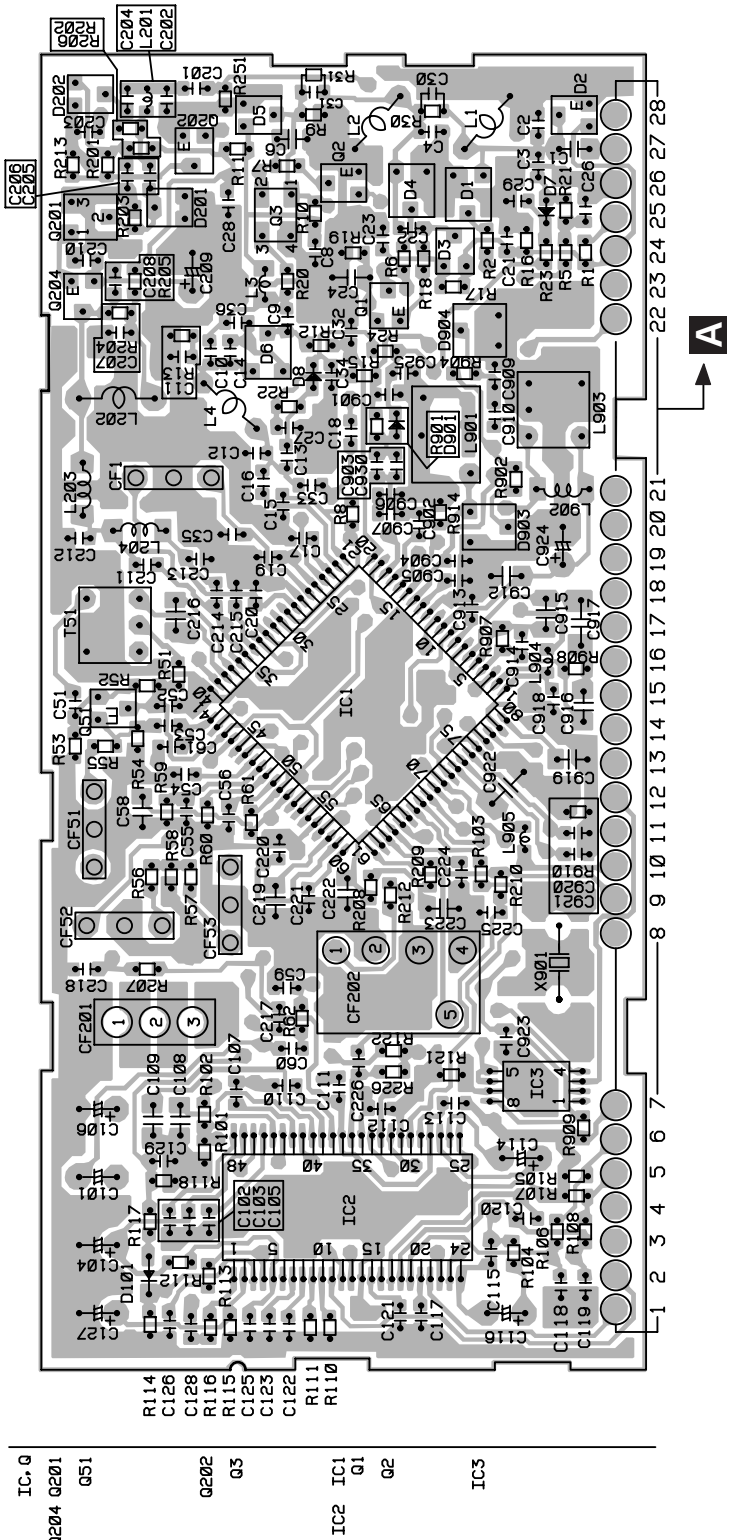
Q476

Q472

D

4.2 FM/AM TUNER UNIT

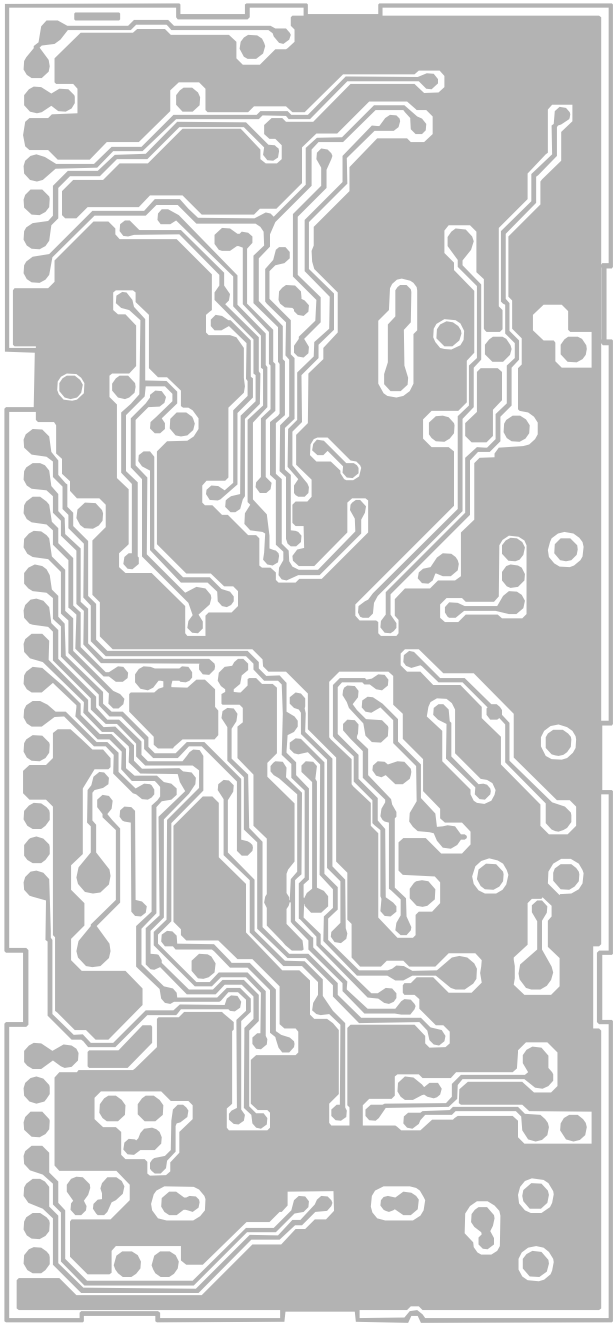
SIDE A



B FM/AM TUNER UNIT

B

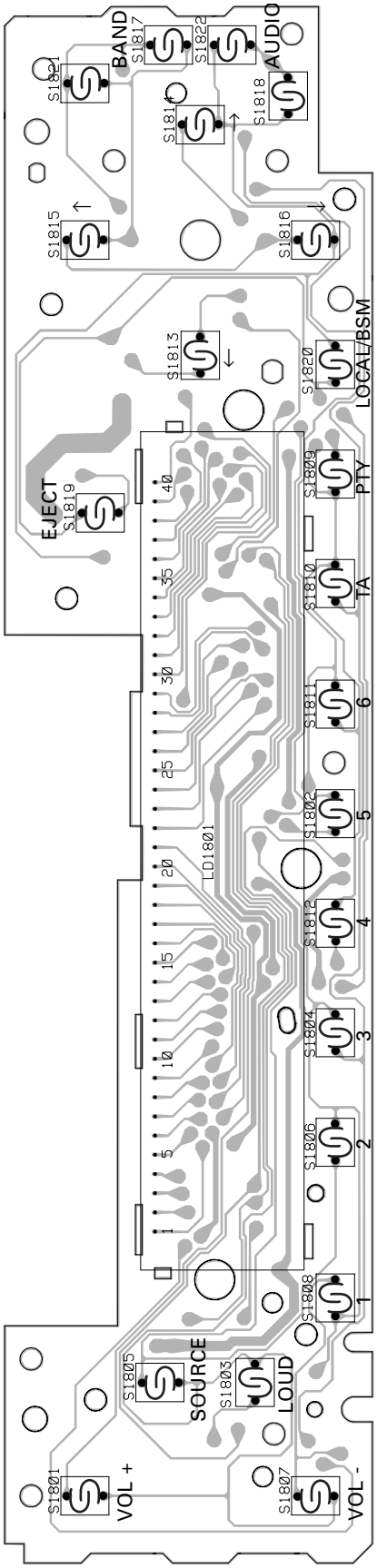
SIDE B



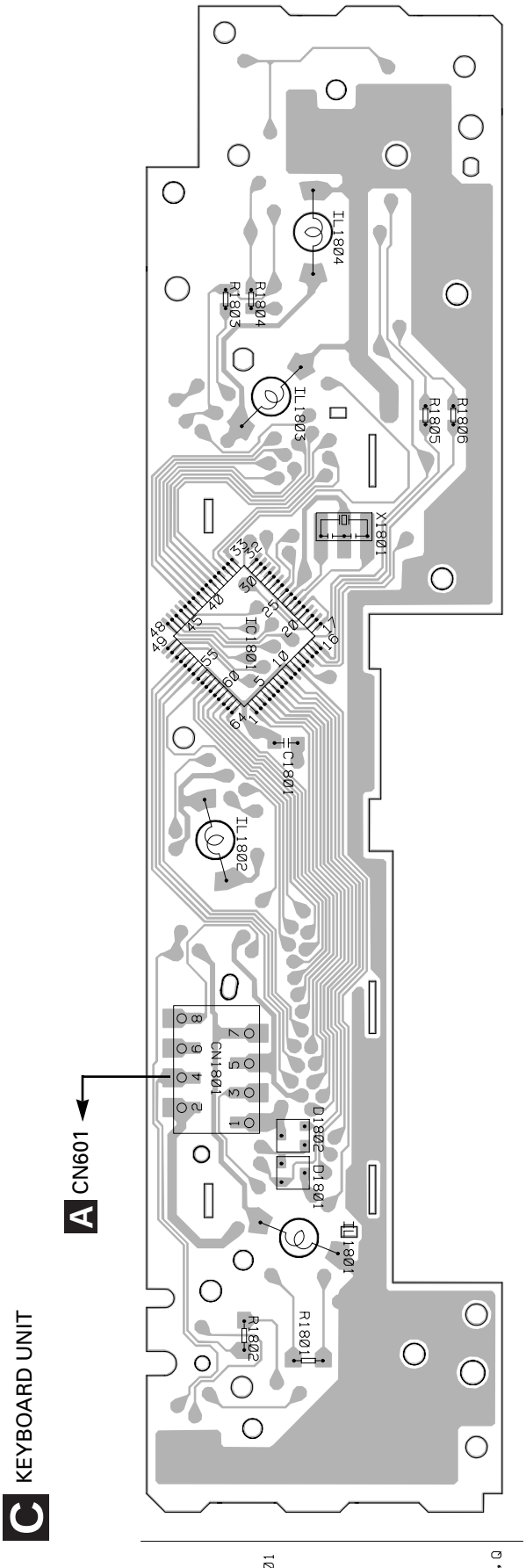
B FM/AM TUNER UNIT

4.3 KEYBOARD UNIT

SIDE A



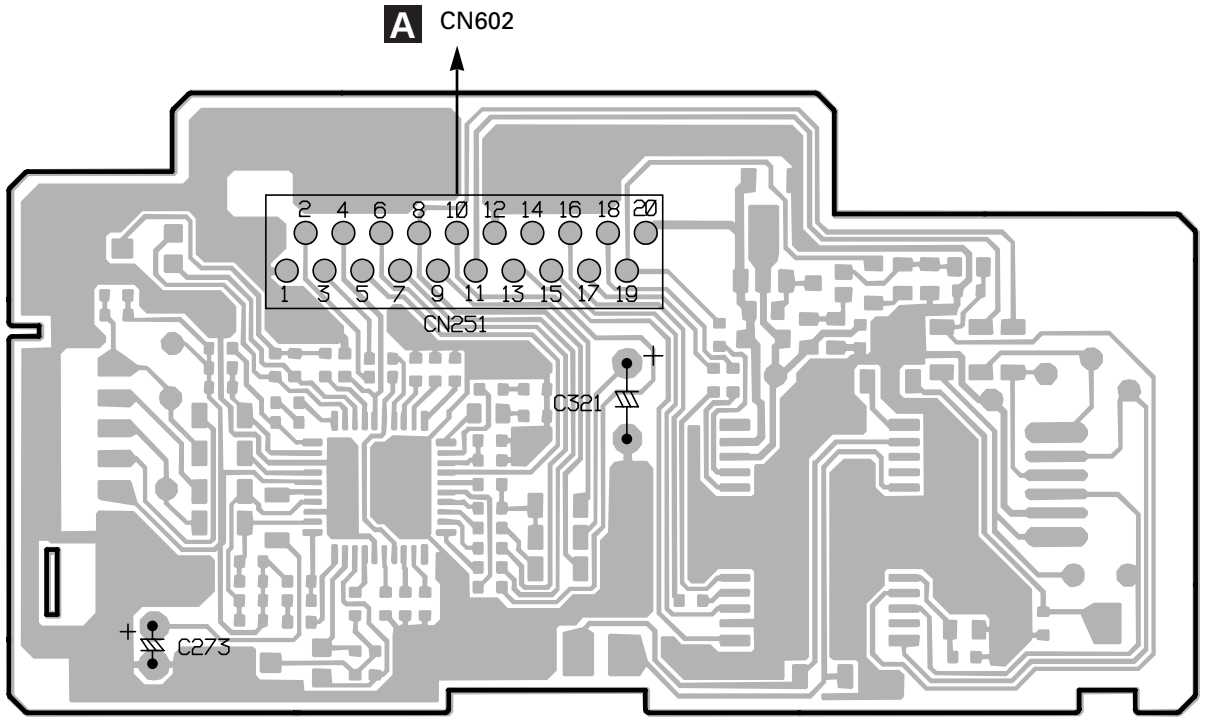
C KEYBOARD UNIT


SIDE B
IL1804
R1804
R1803
IL1803
R1805
R1806
X1801
IC1801
IC1801
IL1802
CN1801
D1802 D1801
IL1801
R1802
R1801
A CN601
C KEYBOARD UNIT
IC1801
IC,Q

4.4 CASSETTE MECHANISM MODULE

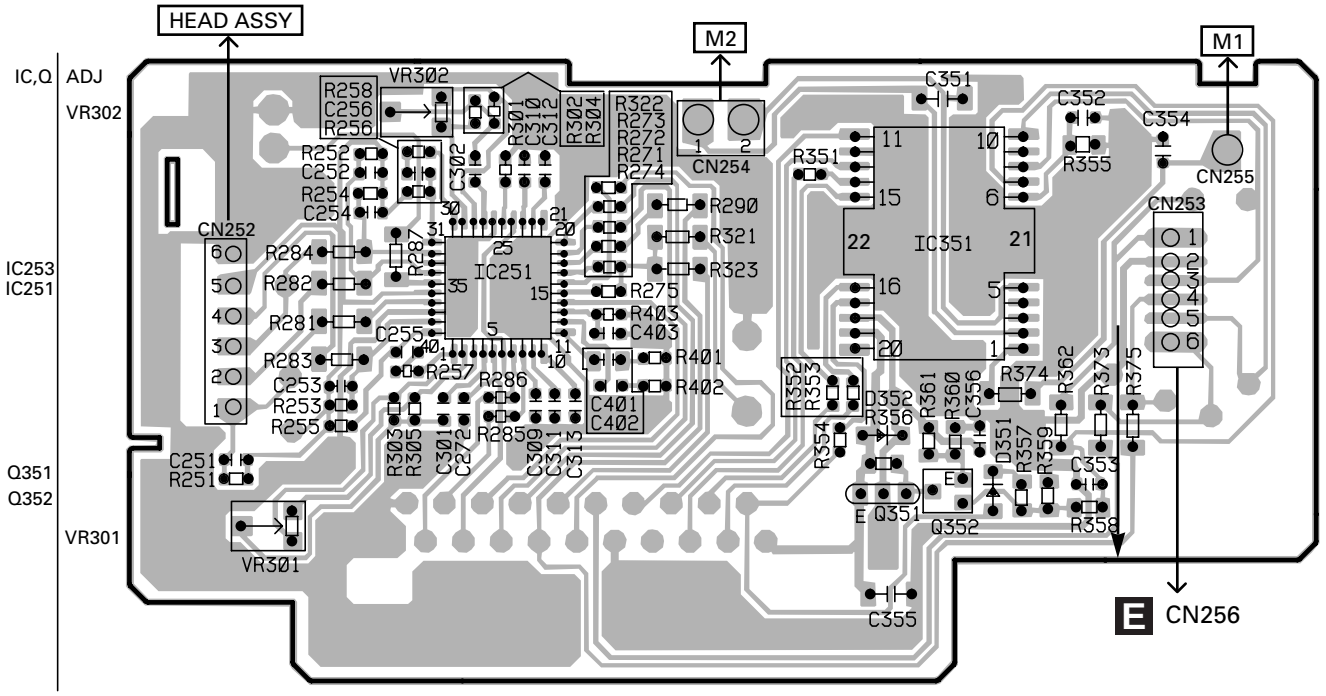
D DECK UNIT

SIDE A

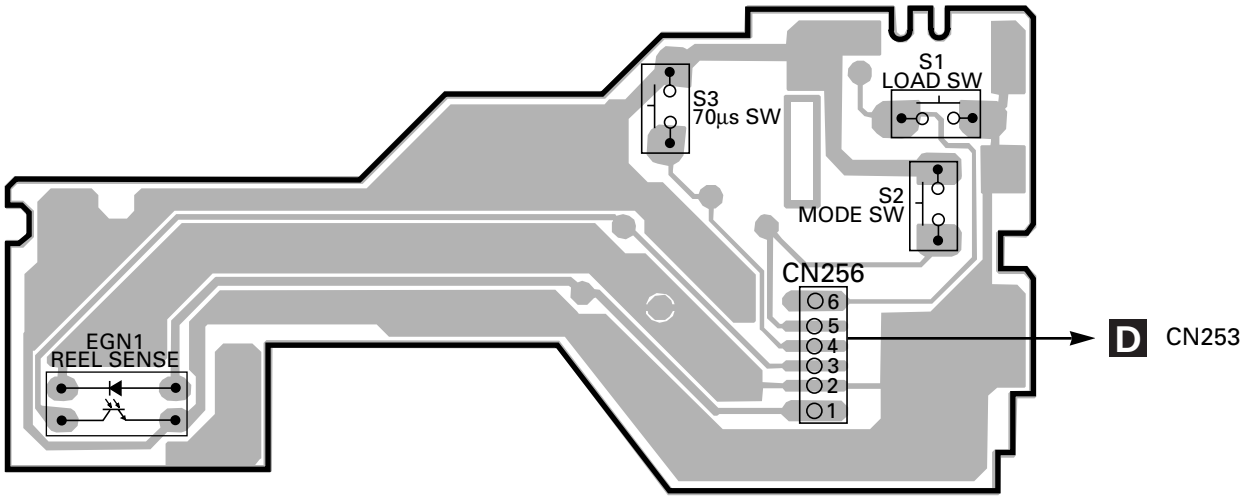


D DECK UNIT

SIDE B



E REEL SENSE PCB



5. ELECTRICAL PARTS LIST

NOTES:

● Parts whose parts numbers are omitted are subject to being not supplied.

● The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM6806
Unit Name : Tuner Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	301	IC	SN761029DL
IC	302	IC	TDA7384
IC	601	IC	PE5088A
IC	602	IC	S-80834ANY
IC	701	IC	PM4009A
IC	901	IC	TPD1018F
Q	350	Transistor	2SC2412K
Q	351	Transistor	DTC124EK
Q	352	Transistor	2SC2412K
Q	411	Transistor	2SC2412K
Q	412	Transistor	2SC2412K
Q	472	Transistor	RN1610
Q	474	Transistor	2SD1757K
Q	475	Transistor	2SD1757K
Q	476	Transistor	2SC2412K
Q	477	Transistor	DTA124EK
Q	650	Transistor	2SA1037K
Q	901	Transistor	2SC2412K
Q	902	Transistor	2SC2412K
Q	903	Transistor	2SD2037
Q	904	Transistor	2SD2396
Q	905	Transistor	2SB1243
Q	906	Transistor	DTC114EK
Q	920	Transistor	RN46A1
Q	951	Transistor	2SA1037K
D	350	Diode	HZS9L(A2)
D	351	Diode	1SS270
D	352	Diode	1SS270
D	601	Diode	1SS270
D	602	Diode	1SS270
D	650	Diode	1SS270
D	651	Diode	1SS270
D	652	Diode	1SS270
D	653	Diode	1SS270
D	654	Diode	1SS270
D	655	Diode	1SS270
D	901	Diode	HZS7L(C2)
D	902	Diode	S5688G
D	903	Diode	S5688G
D	904	Diode	HZS7L(A1)
D	905	Diode	S5688G
D	906	Diode	HZS6L(B2)
D	907	Diode	HZS9L(C1)
D	909	Diode	S5688G
D	910	Diode	S5688G
D	951	Diode	1SS270
D	952	Diode	1SS270
L	401	Ferri-Inductor	LAU4R7K
L	402	Ferri-Inductor	LAU2R2K
L	403	Inductor	LAU100K

=====Circuit Symbol and No.		===Part Name	Part No.
L	601	Ferri-Inductor	LAU2R2K
L	602	Ferri-Inductor	LAU2R2K
L	650	Ferri-Inductor	LAU2R2K
L	703	Inductor	LAU100K
L	704	Ferri-Inductor	LAU101K
L	901	Coil 600µH	CTH1219
L	951	Ferri-Inductor	LAU2R2K
X	601	Ceramic Resonator 4.194MHz	CSS1047
X	702	Crystal Resonator 3.648MHz	CSS1447
AR	945		DSP-201M-S00B

RESISTORS

R	312		RS1/10S272J
R	313		RS1/10S272J
R	314		RS1/10S151J
R	315		RS1/10S151J
R	316		RS1/10S221J
R	317		RS1/10S221J
R	318		RD1/4PU104J
R	319		RD1/4PU104J
R	350		RD1/4PU223J
R	351		RD1/4PU152J
R	352		RD1/4PU103J
R	353		RD1/4PU153J
R	354		RD1/4PU221J
R	355		RD1/4PU101J
R	356		RD1/4PU152J
R	357		RD1/4PU103J
R	358		RD1/4PU223J
R	360		RD1/4PU103J
R	411		RS1/10S681J
R	412		RS1/10S681J
R	413		RS1/10S681J
R	414		RS1/10S103J
R	415		RS1/10S681J
R	416		RD1/4PU473J
R	417		RS1/10S472J
R	418		RS1/10S473J
R	419		RS1/10S473J
R	420		RS1/10S473J
R	421		RD1/4PU473J
R	422		RD1/4PU473J
R	423		RD1/4PU681J
R	424		RD1/4PU681J
R	425		RS1/10S393J
R	426		RS1/10S681J
R	427		RD1/4PU222J
R	428		RD1/4PU222J
R	430		RS1/10S474J
R	431		RS1/10S153J
R	440		RS1/10S681J
R	441		RD1/4PU102J

=====Circuit Symbol and No.		===Part Name	Part No.
R	442		RS1/10S473J
R	443		RS1/10S681J
R	444		RD1/4PU472J
R	445		RD1/4PU473J
R	446		RD1/4PU224J
R	460		RS1/10S162J
R	461		RS1/10S162J
R	464		RS1/10S272J
R	465		RS1/10S272J
R	474		RD1/4PU222J
R	475		RD1/4PU223J
R	476		RD1/4PU223J
R	477		RD1/4PU222J
R	478		RD1/4PU224J
R	479		RD1/4PU224J
R	480		RS1/8S0R0J
R	499		RS1/8S0R0J
R	601		RD1/4PU124J
R	604		RS1/10S473J
R	610		RAB4C473J
R	612		RD1/4PU473J
R	615		RD1/4PU103J
R	616		RS1/10S473J
R	617		RAB4C102J
R	618		RD1/4PU102J
R	621		RD1/4PU102J
R	623		RD1/4PU102J
R	624		RD1/4PU102J
R	626		RS1/8S102J
R	627		RS1/10S102J
R	628		RS1/10S102J
R	629		RS1/10S681J
R	637		RD1/4PU103J
R	649		RD1/4PU222J
R	650		RD1/4PU472J
R	651		RD1/4PU222J
R	652		RD1/4PU472J
R	653		RD1/4PU222J
R	654		RD1/4PU473J
R	655		RD1/4PU752J
R	656		RD1/4PU223J
R	657		RD1/4PU222J
R	660		RS1/10S1R0J
R	713		RS1/10S225J
R	716		RD1/4PU102J
R	721		RD1/4PU102J
R	722		RD1/4PU102J
R	723		RD1/4PU102J
R	724		RD1/4PU681J
R	725		RS1/8S0R0J
R	726		RS1/8S0R0J
R	901		RD1/4PU473J
R	902		RD1/4PU223J
R	903		RD1/4PU223J
R	904		RD1/4PU473J
R	905		RD1/4PU102J
R	906		RD1/4PU473J
R	907		RD1/4PU473J
R	908		RD1/4PU472J
R	909		RD1/4PU103J
R	910		RD1/4PU101J
R	911		RD1/4PU122J
R	912		RD1/4PU103J
R	914		RD1/4PU102J
R	944		RD1/4PU152J
R	951		RD1/4PU153J
R	952		RD1/4PU472J
R	953		RD1/4PU473J
R	954		RD1/4PU102J
R	955		RD1/4PU473J

=====Circuit Symbol and No.		===Part Name	Part No.
CAPACITORS			
C	310		CEJA2R2M50
C	311		CEJA2R2M50
C	312		CEJA2R2M50
C	313		CEJA2R2M50
C	314		CEJA2R2M50
C	317		CEJA100M16
C	318		CEJA100M16
C	319		CKSQYB822K50
C	320		CKSQYB822K50
C	321		CEJA1R0M50
C	322		CEJA1R0M50
C	323		CKSQYB183K50
C	324		CKSQYB183K50
C	325		CKSQYB104K16
C	326		CKSQYB104K16
C	327		CKSQYB104K16
C	328		CKSQYB104K16
C	329		CEJA2R2M50
C	330		CEJA100M16
C	332		CKSQYB473K50
C	333		CEJA470M10
C	334		CKSQYB104K16
C	335		CKSQYB104K16
C	350		CEJA330M10
C	360		CKSQYB225K10
C	361		CEJA1R0M50
C	362		CKSYB225K16
C	363		CEJA100M16
C	364		CFTNA224J50
C	365		CFTNA224J50
C	366		CFTNA224J50
C	367		CFTNA224J50
C	368		CKSQYB104K16
C	399	3300µF/16V	CCH1344
C	411		CKSQYB223K50
C	412		CKSQYB223K50
C	413		CKSQYB102K50
C	414		CEJA220M10
C	415		CKSQYB473K50
C	416		CEJA101M10
C	417		CKSQYB472K50
C	418		CKSQYB472K50
C	441		CKSQYB182K50
C	442		CKSQYB223K50
C	462		CKSQYB123K50
C	463		CKSQYB123K50
C	466		CEJA1R0M50
C	467		CEJA1R0M50
C	481		CCSQCH151J50
C	490		CKSQYB103K50
C	491		CKSQYB102K50
C	492		CCSQCH101J50
C	601		CKSQYB473K50
C	602		CEJA2R2M50
C	603		CKSQYB103K50
C	604		CCSQCH101J50
C	608		CEJA4R7M35
C	609		CEJA100M16
C	610		CEJA220M10
C	650		CKSQYB223K50
C	711		CEJA220M6R3
C	712		CKSQYB104K16
C	714		CKSQYB471K50
C	715		CKSQYB104K16
C	718		CKSQYB471K50

Circuit Symbol and No.		Part Name	Part No.
C	719		CEJA220M6R3
C	720		CKSQYB104K16
C	725		CCSQCH270J50
C	726		CCSQCH270J50
C	901		CEJA101M10
C	902		CKSQYB473K50
C	903	470µF/16V	CCH1183
C	904		CKSQYB103K50
C	905	330µF/10V	CCH1181
C	906		CKSQYB103K50
C	907	100µF/16V	CCH1179
C	908		CKSQYB103K50
C	910		CKSQYB473K50

B Unit Number : CWE1500
Unit Name : FM/AM Tuner Unit

MISCELLANEOUS

IC	1	IC	PML002A
IC	2	IC	PM4008A
IC	3	IC	BR9010FV
Q	1	Transistor	2SC4081
Q	2	Transistor	DTC124EU
Q	3	FET	3SK263
Q	51	Transistor	2SC4081
Q	201	FET	2SK932
Q	202	Transistor	DTC124EU
Q	204	Transistor	2SC4081
D	1	Diode	KV1410(23)
D	2	Diode	1SV248
D	4	Diode	KV1410(23)
D	6	Diode	KV1410(23)
D	101	Diode	1SS355
D	201	Diode	DAN217U
D	202	Diode	DAN217U
D	903	Diode	KV1410(23)
D	904	Diode	SVC253
L	1	Coil	CTC1155
L	2	Coil	CTC1155
L	3	Inductor	LCTB100K2125
L	4	Coil	CTC1155
L	201	Inductor	LCTB330K1608
L	202	Inductor	CTF1287
L	203	Inductor	LCTA121J3225
L	901	Coil	CTC1154
L	902	Inductor	LCTA3R3J3225
L	904	Inductor	LCTBR47K1608
L	905	Inductor	LCTBR47K1608
T	51	Coil	CTE1132
CF	51	Ceramic Filter	CTF1442
CF	52	Ceramic Filter	CTF1442
CF	53	Ceramic Filter	CTF1442
CF	202	Ceramic Filter	CTF1348
X	901	Crystal Resonator 10.250MHz	CSS1432

RESISTORS

R	1	RS1/16S153J
R	2	RS1/16S103J
R	6	RS1/16S103J
R	7	RS1/16S273J
R	8	RS1/16S473J
R	9	RS1/16S223J
R	10	RS1/16S473J
R	11	RS1/16S221J
R	12	RS1/16S103J
R	13	RS1/16S104J
R	16	RS1/16S223J
R	17	RS1/16S221J
R	18	RS1/16S221J
R	19	RS1/16S473J
R	20	RS1/16S470J
R	51	RS1/16S470J
R	52	RS1/16S103J
R	53	RS1/16S103J
R	54	RS1/16S331J
R	55	RS1/16S331J
R	56	RS1/16S560J
R	57	RS1/16S560J
R	58	RS1/16S102J
R	59	RS1/16S225J
R	60	RS1/16S133J
R	61	RS1/16S433J
R	62	RS1/16S562J
R	101	RS1/16S333J
R	102	RS1/16S103J
R	103	RS1/16S333J
R	104	RS1/16S562J
R	106	RS1/16S0R0J
R	108	RS1/16S0R0J
R	110	RS1/16S154J
R	111	RS1/16S273J
R	112	RS1/16S223J
R	113	RS1/16S222J
R	114	RS1/16S333J
R	115	RS1/16S334J
R	116	RS1/16S473J
R	117	RS1/16S333J
R	118	RS1/16S223J
R	122	RS1/16S0R0J
R	202	RS1/16S472J
R	203	RS1/16S225J
R	204	RS1/16S102J
R	205	RS1/16S220J
R	206	RS1/16S471J
R	208	RS1/16S104J
R	209	RS1/16S104J
R	210	RS1/16S563J
R	213	RS1/16S223J
R	251	RS1/16S225J
R	902	RS1/16S103J
R	904	RS1/16S473J
R	907	RS1/16S103J
R	908	RS1/16S681J
R	909	RS1/16S473J
R	914	RS1/16S562J

CAPACITORS

C	1	CCSQCH5R0C50
C	2	CCSRCH5R0C50
C	4	CCSRCJ3R0C50
C	6	CKSQYB105K10
C	8	CKSRYB222K50
C	10	CCSRCH220J50
C	11	CCSRCH150J50
C	12	CCSRCH8R0D50
C	14	CCSRCJ3R0C50
C	15	CKSRYB103K50
C	16	CKSRYB222K50
C	17	CKSRYB222K50
C	18	CCSRCJ3R0C50
C	19	CKSRYB103K50
C	20	CKSRYB103K50

=====Circuit Symbol and No.		===Part Name	Part No.
C	21		CKSRYB103K50
C	24		CKSQYB334K16
C	31		CKSRYB222K50
C	32		CCSRCH470J50
C	35		CKSRYB103K50
C	51		CKSRYB103K50
C	52		CKSRYB473K16
C	53		CCSRCK2R0C50
C	54		CKSRYB103K50
C	55		CKSRYB104K16
C	56		CKSRYB104K16
C	58		CKSQYB224K16
C	59		CKSRYB223K25
C	60		CKSRYB104K16
C	101		CEALNP100M10
C	102		CCSRCH151J50
C	103		CKSRYB473K16
C	105		CKSRYB682K25
C	106		CEAL2R2M50
C	107		CKSRYB103K50
C	108		CKSQYB474K16
C	109		CKSQYB474K16
C	110		CKSRYB104K16
C	111		CKSRYB104K16
C	112		CKSRYB104K16
C	113		CKSRYB123K25
C	114		CEAL220M6R3
C	115		CKSRYB473K16
C	116		CEAL2R2M50
C	117		CKSRYB102K50
C	120		CKSRYB153K25
C	121		CKSRYB332K50
C	122		CKSRYB682K25
C	123		CKSRYB681K50
C	125		CKSRYB103K50
C	126		CKSRYB103K50
C	127		CEAL2R2M50
C	128		CKSRYB103K50
C	201		CCSRCH471J50
C	202		CCSRCH100D50
C	203		CKSRYB104K16
C	204		CKSRYB332K50
C	205		CKSRYB103K50
C	206		CKSRYB104K16
C	207		CKSRYB473K16
C	208		CCSRCH560J50
C	209		CEAL470M6R3
C	210		CKSRYB103K50
C	211		CKSRYB103K50
C	212		CCSRCH101J50
C	215		CKSRYB223K25
C	216		CKSQYB334K16
C	217		CKSRYB103K50
C	219		CKSQYB105K10
C	220		CKSRYB104K16
C	221		CKSRYB473K16
C	222		CKSQYB334K16
C	223		CKSQYB474K16
C	224		CKSRYB104K16
C	225		CKSRYB272K50
C	226		CKSRYB682K25
C	902		CCSRCH270J50
C	904		CKSRYB223K25
C	905		CKSRYB103K50
C	906		CCSRTH100D50
C	907		CCSRTH150J50
C	909		CCSRTH100D50
C	910		CKSRYB332K50
C	912		CKSQYB474K16
C	913		CKSRYB223K25

=====Circuit Symbol and No.		===Part Name	Part No.
C	914		CKSRYB682K25
C	915		CKSQYB223K25
C	916		CKSQYB474K16
C	917		CKSYB475K10
C	918		CKSRYB223K25
C	919		CKSQYB225K10
C	920		CCSRCH270J50
C	921		CCSRCH270J50
C	922		CKSYB105K16
C	923		CKSRYB103K50

C Unit Number : CWM6813 (KEH-3930R/X1M/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1801	IC	PD6293A
D	1801	Diode	MA152WK
D	1802	Diode	MA152WA
X	1801	Ceramic Resonator 4.97MHz	CSS1422
IL	1801	Lamp 14V 40mA	CEL1638
IL	1802	Lamp 14V 40mA	CEL1638
IL	1803	Lamp 14V 40mA	CEL1638
IL	1804	Lamp 14V 40mA	CEL1638
LCD	1801	LCD	CAW1559

RESISTORS

R	1801	RS1/8S222J
R	1802	RS1/8S222J
R	1803	RS1/10S471J
R	1804	RS1/10S471J
R	1805	RS1/10S471J
R	1806	RS1/10S471J

CAPACITORS

C	1801	CKSQYB103K50

C Unit Number : CWM6812 (KEH-3900R/X1M/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1801	IC	PD6293A
D	1801	Diode	MA152WK
D	1802	Diode	MA152WA
X	1801	Ceramic Resonator 4.97MHz	CSS1422
IL	1801	Lamp 14V 40mA	CEL1547
IL	1802	Lamp 14V 40mA	CEL1547
IL	1803	Lamp 14V 40mA	CEL1547
IL	1804	Lamp 14V 40mA	CEL1547
LCD	1801	LCD	CAW1559

RESISTORS

R	1801	RS1/8S222J
R	1802	RS1/8S222J
R	1803	RS1/10S471J
R	1804	RS1/10S471J
R	1805	RS1/10S471J
R	1806	RS1/10S471J

CAPACITORS

C	1801	CKSQYB103K50

=====Circuit Symbol and No.	===	Part Name	Part No.

D Unit Number : EWM1023
Unit Name : Deck Unit

MISCELLANEOUS

IC	251	IC	CXA2559Q
IC	351	IC	PA2020A
D	352	Diode	1SS355

RESISTORS

R	255	RS1/16S221J
R	256	RS1/16S221J
R	257	RS1/16S102J
R	258	RS1/16S102J
R	271	RS1/16S102J
R	272	RS1/16S102J
R	273	RS1/16S102J
R	274	RS1/16S102J
R	281	RS1/8S0R0J
R	282	RS1/8S0R0J
R	283	RS1/8S0R0J
R	284	RS1/8S0R0J
R	285	RS1/16S0R0J
R	286	RS1/16S0R0J
R	287	RS1/8S0R0J
R	290	RS1/8S0R0J
R	301	RS1/16S183J
R	302	RS1/16S163J
R	303	RS1/16S163J
R	304	RS1/16S163J
R	305	RS1/16S163J
R	323	RS1/8S0R0J
R	351	RS1/16S102J
R	352	RS1/16S102J
R	353	RS1/16S102J
R	354	RS1/16S102J
R	355	RS1/10S274J
R	362	RS1/8S301J
R	373	RS1/8S0R0J
R	374	RS1/8S0R0J
R	401	RS1/16S472J
R	402	RS1/16S183J
R	403	RS1/16S823J

6. ADJUSTMENT

There is no information to be shown in this chapter.

=====Circuit Symbol and No.	===	Part Name	Part No.

CAPACITORS

C	251	CKSRYB331K50
C	252	CKSRYB331K50
C	253	CKSRYB331K50
C	254	CKSRYB331K50
C	255	CKSRYB103K50
C	256	CKSRYB103K50
C	272	CKSRYB104K16
C	273	CEJA220M16
C	301	CKSRYB104K16
C	302	CKSRYB104K16
C	313	CCSRCH101J50
C	351	CKSYB224K25
C	352	CKSRYB392K50
C	353	CKSRYB103K50
C	354	CKSRYB103K50
C	355	CKSYB104K50
C	356	CKSRYB103K50
C	401	CKSQYB334K16
C	402	CKSRYB392K50
C	403	CKSRYB683K16

E Unit Number :
Unit Name : REEL SENSE PCB

S	1	Switch(LOAD)	ESG1007
S	2	Switch(MODE)	ESG1007
EGN	1	Photo-reflector	EGN1004

Miscellaneous Parts List

M	1	Motor Unit(MAIN)	EXA1491
M	2	Motor Unit(SUB)	EXA1580
HD	1	Head Assy	EXA1592
		Fuse(10A)	CEK1136

7. GENERAL INFORMATION

7.1. DISASSEMBLY

● **Remove the Case(not shown)**

1. Remove the two screws.
2. Remove the Case.

● **Remove the Cassette Mechanism Module (not shown)**

1. Remove the four screws.
2. Disconnect the connector, and then remove the Cassette Mechanism module.

● **Remove the Panel Unit(Fig.1)**

1 Disengage the stopper at two locations indicated by arrow.

2 Remove the Panel Unit.

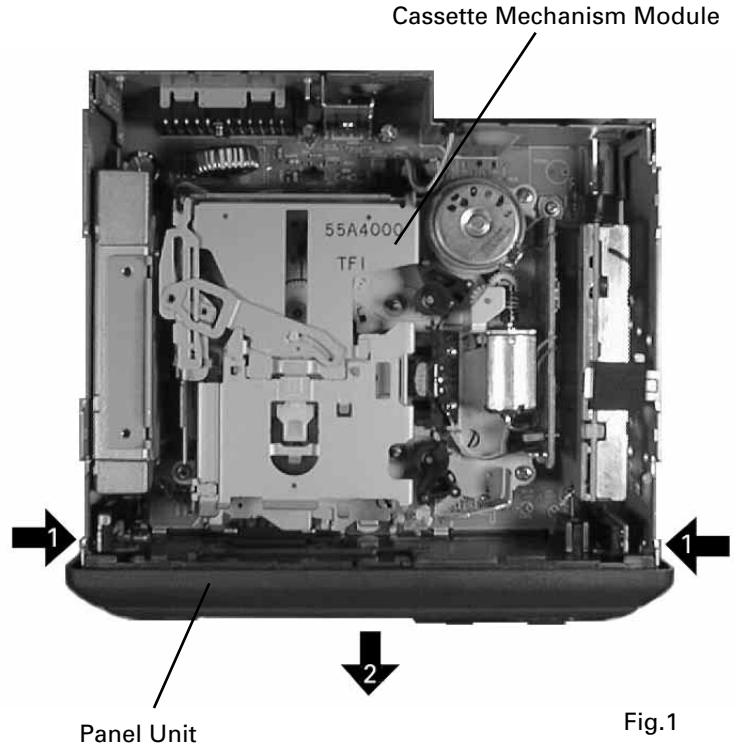


Fig.1

● **Remove the Tuner Amp Unit(Fig.2)**

1 Remove the two screws.

2 Remove the three screws.

3 Remove the screw.

4 Unbend the tabs at four locations indicated by arrow until straight.
Remove the Tuner Amp Unit.

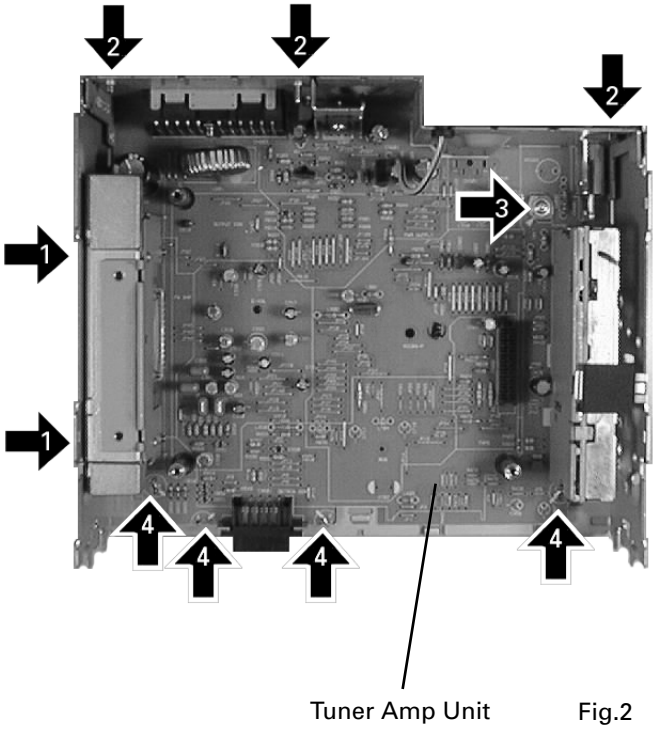


Fig.2

7.2 PARTS

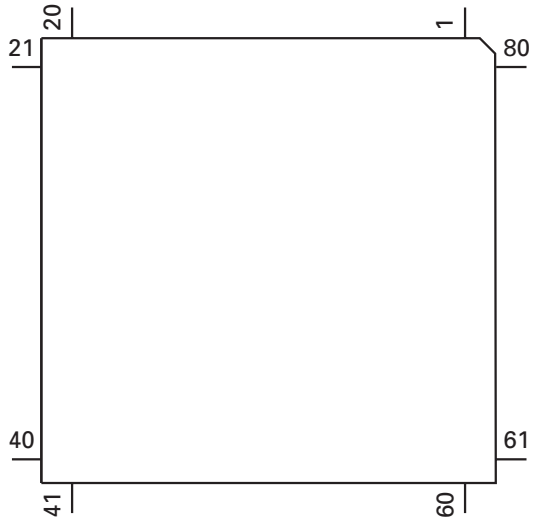
7.2.1 IC

● **Pin Functions (PE5088A)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1,2	NC			Not used
3	ADPW	O	C	A/D converter power supply output
4	AVSS			GND
5	$\overline{\text{SWVDD}}$	O	C	Grille power supply control output
6	$\overline{\text{ST}}$	I		FM stereo input
7	AVREF1			Connected to 5V line
8	KYDT	I		Key data input
9	DPDT	O	C	Display data output
10	SDBW	I		SDBW input
11	TUNPDI	I		PLL IC data input
12	TUNPDO	O	C	PLL IC data output
13	TUNPCK	O	C	PLL IC clock output
14	TUNPCE	O	C	PLL IC chip enable output
15	$\overline{\text{CURRQ}}$	O	C	Tuner voltage FIX output
16–18	NC			Not used
19	RECIVE	O	C	During RDS data reception output
20	PCE2	O	C	PLL IC chip enable output
21	$\overline{\text{FM}}$/AM	O	C	FM/AM power select output
22	VST	O	C	Strobe pulse output for electronic volume
23	VCK	O	C	Clock output for electronic volume
24	VDT	O	C	Data output for electronic volume
25	LCDPW	O	C	LCD back light power supply control output
26	ILMPW	O	C	Illumination power supply control output
27	LOCH	O	C	LOCH output
28	LOCL	O	C	LOCL output
29	NC			Not used
30	$\overline{\text{RIMUTE}}$	O	N	RI output port
31	CM	O	C	Cassette mechanism capstan motor control output
32	NR	O	N	Dolby B NR output
33	VSS			GND
34	SC2	O	C	Cassette mechanism sub motor control output
35	SC1	O	C	Cassette mechanism sub motor control output
36	MSIN	I		Cassette mechanism MS sense input
37-39	NC			Not used
40	$\overline{\text{N}}$/R	O		Tape direction forward / reverse output
41	PLAY	O	C	Tape MS filter select output
42	$\overline{\text{LOADSW}}$	I		Tape loading input
43	POS	I		Cassette mechanism position sense input
44	RES	I		Cassette mechanism reverse end sense input
45	PEE	O	C	Beep tone output
46	NES	I		Cassette mechanism forward end sense input
47	RDS57K	I		57kHzBP-OUT sense input
48	STBY	O	C	Stand-by output
49	NC			Not used
50	$\overline{\text{DRST}}$	O	C	Decoder reset output
51	$\overline{\text{TMUTE}}$	O	C	Tuner mute output
52	ANTPW	O		Antenna power output
53	SD	I		SD input
54	$\overline{\text{MUTE}}$	O	C	Mute output
55	SYSPW	O	C	System power supply control output
56,57	NC			Not used
58	$\overline{\text{RDSLK}}$	I		RDS LK signal input
59	RDT	I		RDS data input
60	$\overline{\text{RESET}}$	I		Reset input
61	$\overline{\text{LDET}}$	I		PLL lock sense input

Pin No.	Pin Name	I/O	Format	Function and Operation
62	$\overline{RCK}$	I		RDS clock input
63	$\overline{DSENS}$	I		Grille detach sense input
64	TELIN	I		Telephone mute input
65	$\overline{ASENS}$	I		ACC power sense input
66	$\overline{BSENS}$	I		Back up power sense input
67	NC			Not used
68	VDD			VDD
69	X2	O		Oscillator output
70	X1	I		Oscillator input
71	GND			Connect to GND
72	NC			Not used
73	TESTIN	I		Test program mode input
74	AVDD			A/D converter analog power supply (VDD)
75	AVREF0	I		A/D converter standard voltage input
76	SL	I		Signal level input
77	MODELIN	I		Model select input
78	NL1	I		Noise level 1 input
79	NL2	I		Noise level 2 input
80	NC			Not used

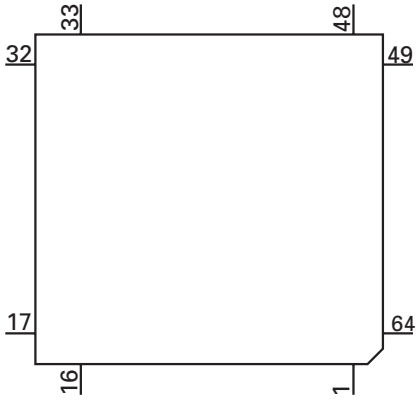
*PE5088A



Format	Meaning
C	C MOS
N	N Channel open drain

IC's marked by* are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

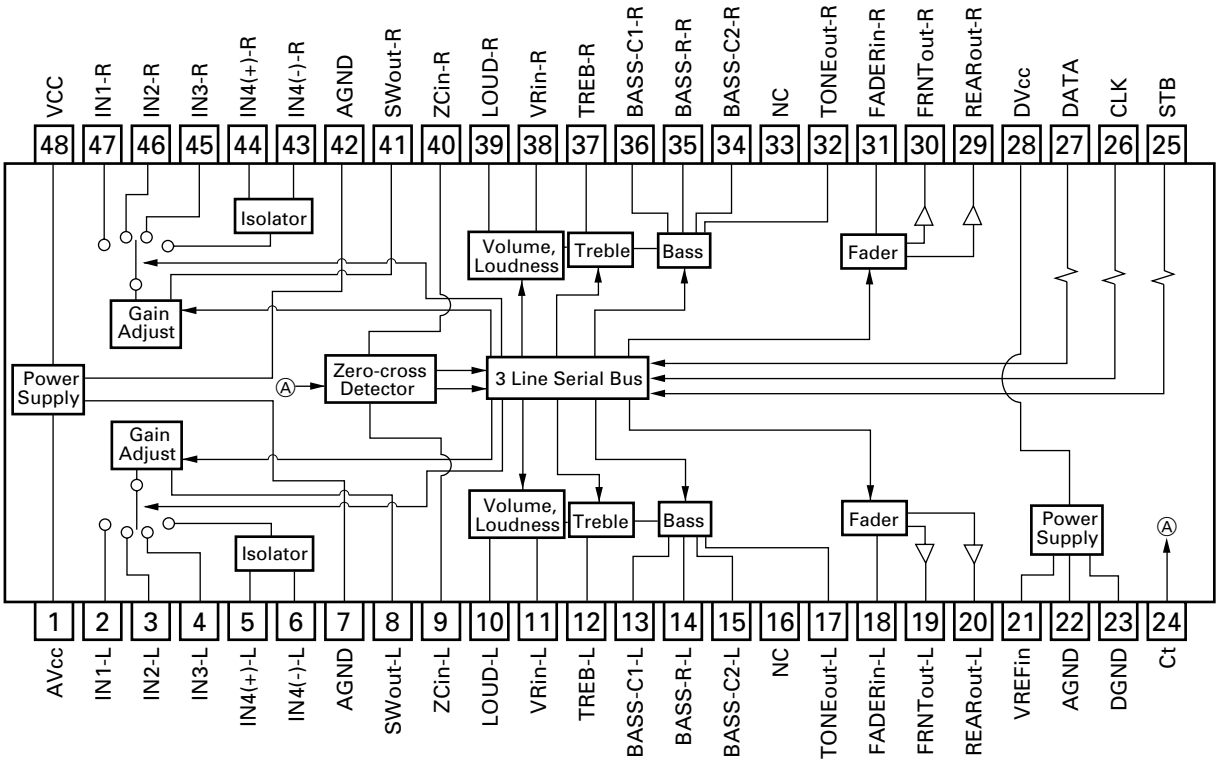
*PD6293A



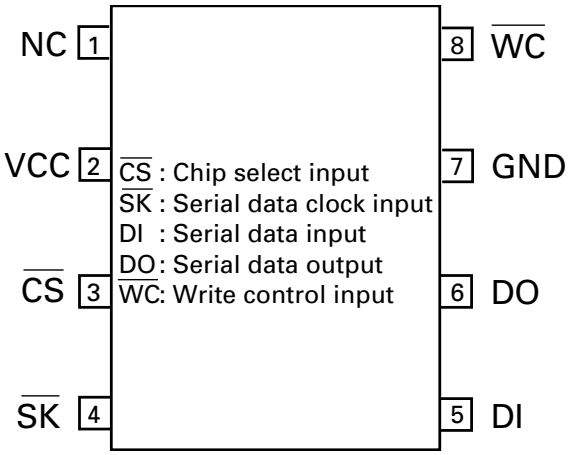
● **Pin Functions (PD6293A)**

Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	VLCD		LCD drive power supply
11-14	KST3-0	O	Key strobe output
15,16	KDT0,1	I	Key data input (analogue input)
17	REM	I	Remote control reception
18	DPDT	I	Display data input
19	NC		Not used
20	KYDT	O	Key data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27	NC		Not used
28	KST4	O	Key strobe output
29-32	NC		Not used
33-55	SEG35-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

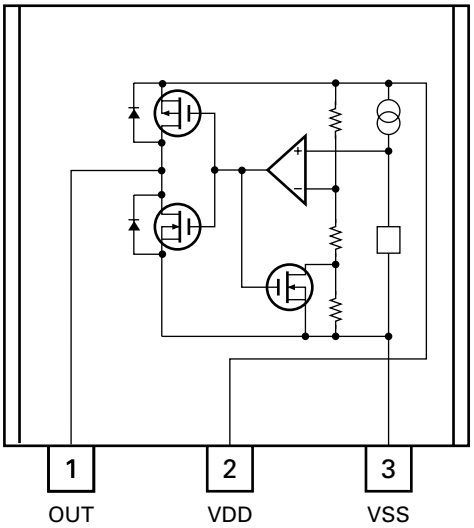
SN761029DL



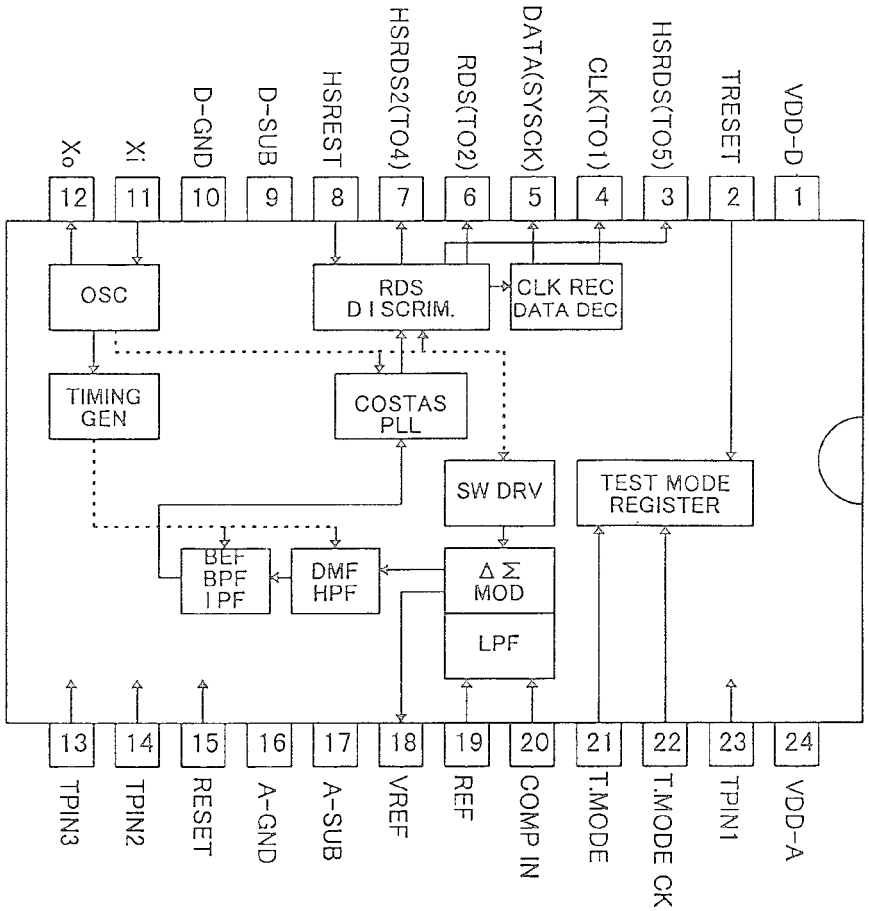
BR9010FV



S-80834ANY

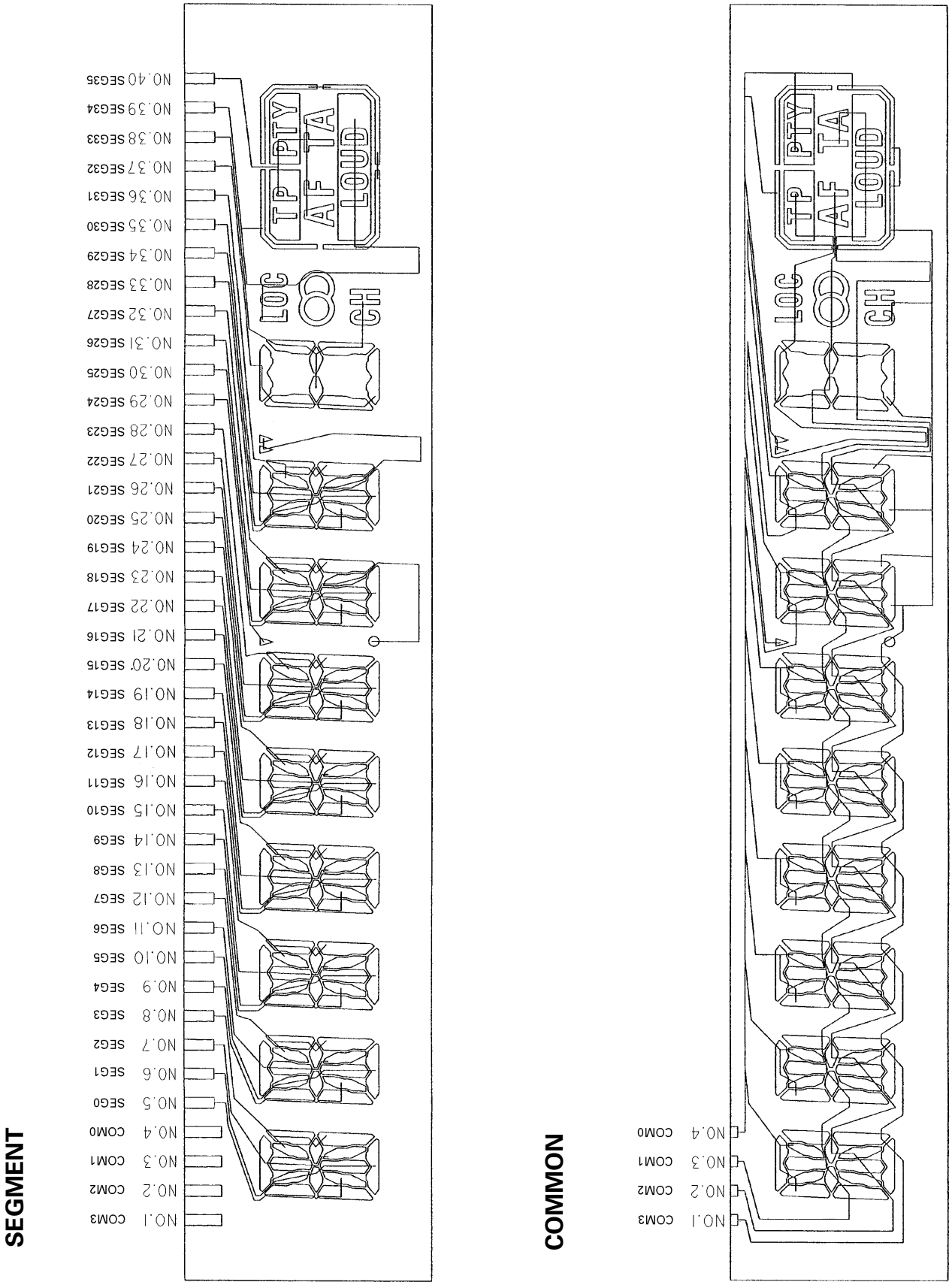


PM4009A



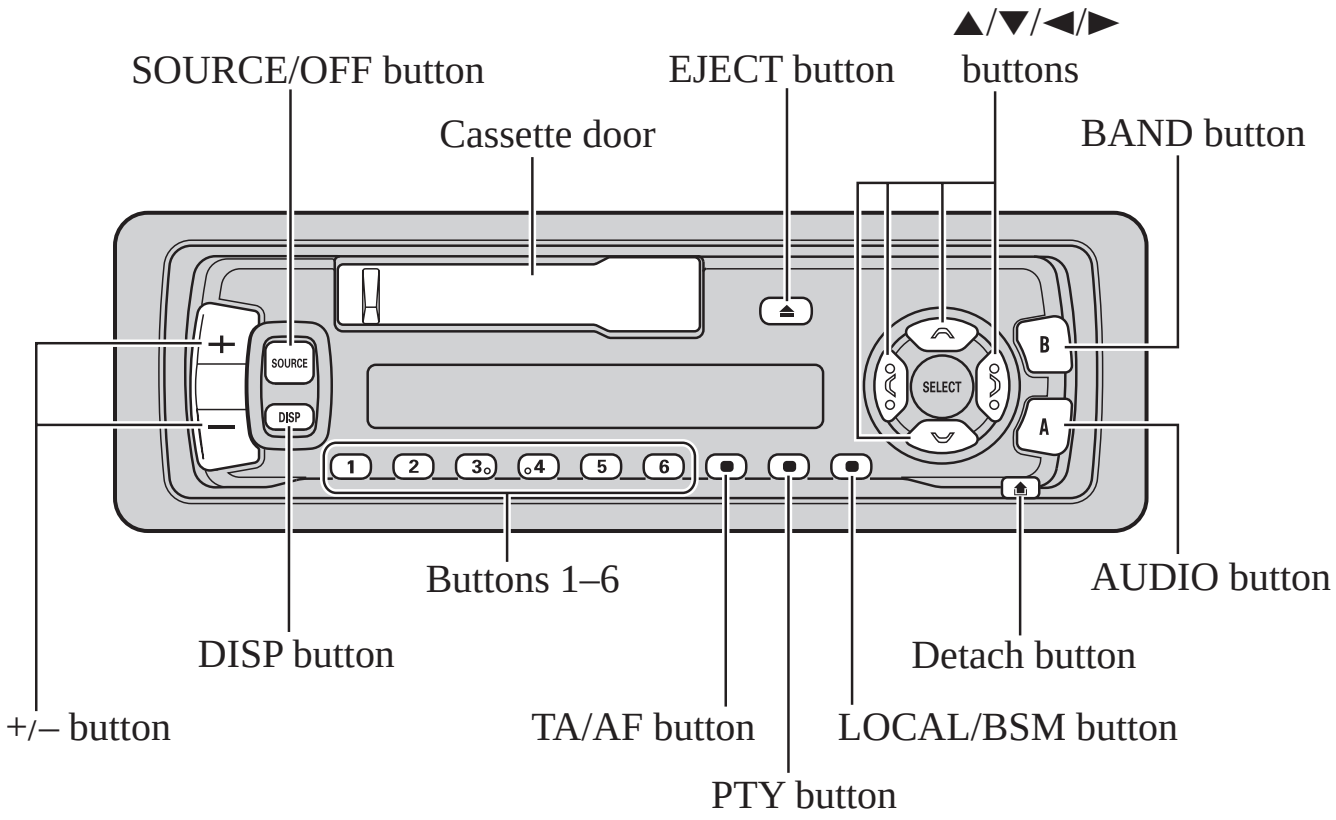
7.2.2 DISPLAY

● **CAW1559**



8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

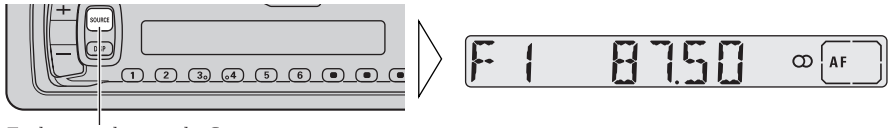


To Listen to Music

The following explains the initial operations required before you can listen to music.

Note:
- Loading a cassette in this product.

1. Select the desired source (e.g. Tuner).

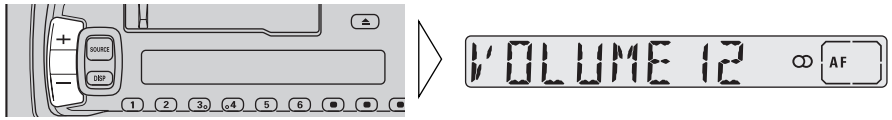


Each press changes the Source ...

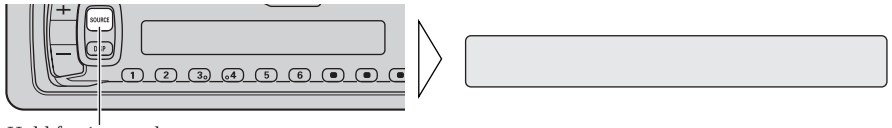
Each press of the SOURCE/OFF button selects the desired source in the following order:
Tape → Tuner

Note:
- The cassette player will not change when no tape is set in this product.
- When this product's blue/white lead is connected to the car's Auto-antenna relay control terminal, the car's Auto-antenna extends when this product's source is switched ON. To retract the antenna, switch the source OFF.

2. Raise or lower the volume.



3. Turn the source OFF.



Hold for 1 second

Basic Operation of Tuner

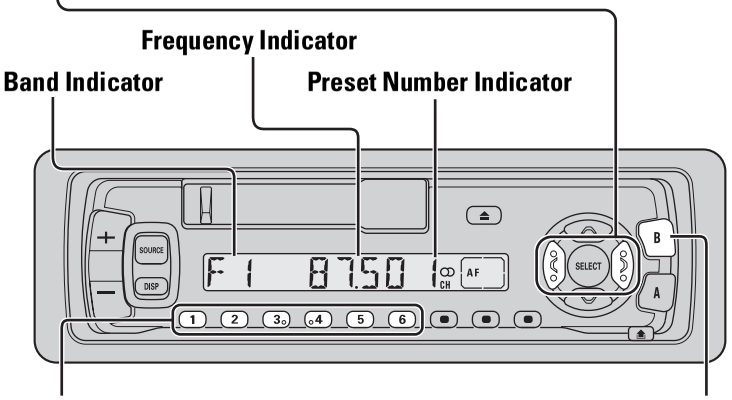
This product's AF function can be switched ON and OFF. AF should be switched OFF for normal tuning operations.

Manual and Seek Tuning

- **You can select the tuning method by changing the length of time you press the ◄/► button.**

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

Note:
- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcast stations. Seek Tuning starts as soon as you release the button.
- Stereo indicator "◯◯" lights when a stereo station is selected.



Preset Tuning

- **You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.**

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:
- Up to 12 FM stations (6 in F1 (FM1) and F2 (FM2)) and 6 MW/LW stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

Band

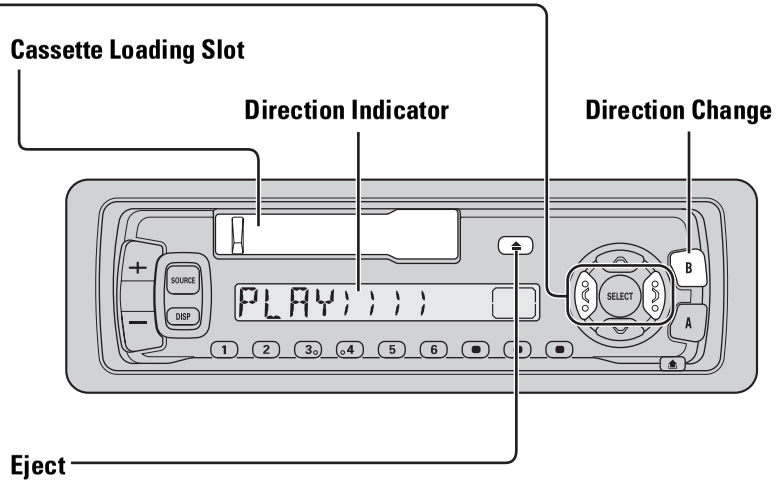
F1 (FM1) → F2 (FM2) → MW/LW

Basic Operation of Cassette Player

Fast Forward/Rewind and Music Search

- **Each press of the ► button selects Fast Forward or Forward-Music Search.**
  FF (Fast Forward) → F-MS (Forward-Music Search) → Normal Playback
- **Each press of the ◄ button selects Rewind or Rewind-Music Search.**
  REW (Rewind) → R-MS (Rewind-Music Search) → Normal Playback

Note:
- Fast Forward/Rewind and Music Search can be canceled by pressing the BAND button.



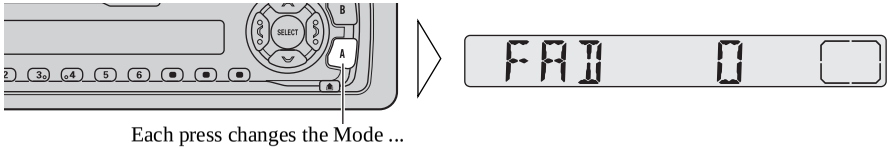
Note:
- The Tape function can be turned ON/OFF with the cassette tape remaining in this product.

Entering the Audio Menu

With this Menu, you can adjust the sound quality.

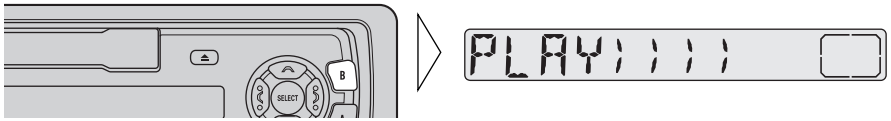
Note:
- After entering the Audio Menu, if you do not perform an operation within about 30 seconds, the Audio Menu is automatically canceled.

1. **Select the desired mode in the Audio Menu.**



Each press changes the Mode ...

2. **Operate a mode.**
3. **Cancel the Audio Menu.**



Audio Menu Functions

The Audio Menu features the following functions.

Balance Adjustment (FAD)

This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. **Press the AUDIO button and select the Fader/Balance mode (FAD) in the Audio Menu.**
2. **Adjust front/rear speaker balance with the ▲/▼ buttons.**
   "FAD F15" – "FAD R15" is displayed as it moves from front to rear.

3. **Adjust left/right speaker balance with the ◄/► buttons.**
   "BAL L9" – "BAL R9" is displayed as it moves from left to right.

Note:
- "FAD 0" is the proper setting when 2 speakers are in use.

Bass Adjustment (BAS)

You can adjust a Bass level as desired.

1. **Press the AUDIO button and select the Bass mode (BAS) in the Audio Menu.**
2. **Boost or attenuate the bass level with the ▲/▼ buttons.**
   The display shows "+6" – "–6"

Treble Adjustment (TRE)

You can adjust a Treble level as desired.

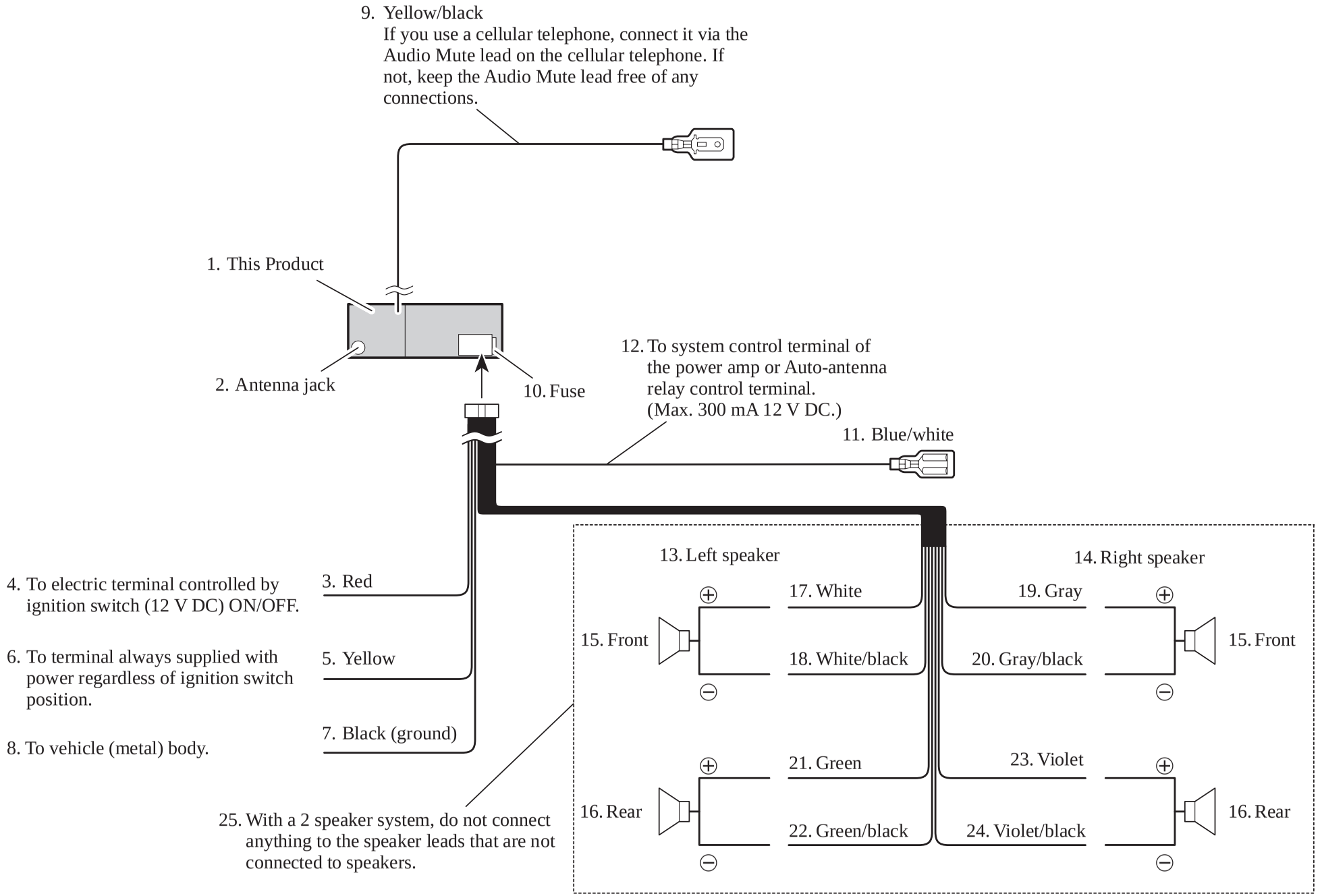
1. **Press the AUDIO button and select the Treble mode (TRE) in the Audio Menu.**
2. **Boost or attenuate the treble level with the ▲/▼ buttons.**
   The display shows "+6" – "–6"

Loudness Adjustment (LOUD)

The Loudness function compensates for deficiencies in the low and high sound ranges at low volume.

1. **Press the AUDIO button and select the Loudness mode (LOUD) in the Audio Menu.**
2. **Switch the Loudness function ON/OFF with the ▲/▼ buttons.**

"LOUD"


9. Yellow/black
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
1. This Product
2. Antenna jack
10. Fuse
12. To system control terminal of the power amp or Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)
11. Blue/white
4. To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
3. Red
6. To terminal always supplied with power regardless of ignition switch position.
5. Yellow
8. To vehicle (metal) body.
7. Black (ground)
25. With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
13. Left speaker
14. Right speaker
17. White
19. Gray
15. Front
18. White/black
20. Gray/black
15. Front
21. Green
23. Violet
16. Rear
22. Green/black
24. Violet/black
16. Rear

8.2 SPECIFICATIONS

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 8.5 A
Dimensions
(mounting size) ..... 178 (W) × 50 (H) × 155 (D) mm
(front face) ..... 188 (W) × 58 (H) × 19 (D) mm
Weight ..... 1.2 kg

Amplifier

Maximum power output ..... 40 W × 4
Continuous power output ..... 22 W × 4
(DIN45324, +B = 14.4 V)
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Tone controls
(Bass) ..... ±12 dB (100 Hz)
(Treble) ..... ±12 dB (10 kHz)
Loudness contour ..... +10 dB (100 Hz), +7 dB (10 kHz)
(volume: –30 dB)

Cassette player

Tape ..... Compact cassette tape (C-30 – C-90)
Tape speed ..... 4.76 cm/sec.(+0.14cm/sec., -0.05cm/sec.)
Fast forward/rewinding time .... Approx. 100 sec. for C-60
Wow & flutter ..... 0.09% (WRMS)
Frequency response ..... 30 – 16,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio..... 61 dB (IEC-A network)

FM tuner

Frequency range ..... 87.5 – 108 MHz
Usable sensitivity
..... 11 dBf (1.0 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range ..... 531 – 1,602 kHz
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

LW tuner

Frequency range ..... 153 – 281 kHz
Usable sensitivity ..... 30 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.